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NOAA Fisheries
Pacific Islands Fisheries Science Center
Honolulu, Hawaii

January 2004

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Administrative Report H-04-03C

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Pacific Islands Fisheries Science Center

Administrative Report H-04-03C

FORAGING ECOLOGY OF HAWAIIAN MONK SEALS (*Monachus schauinslandi*) AT PEARL AND HERMES REEF, NORTHWESTERN HAWAIIAN ISLANDS: 1997-1998

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January 2004

PREFACE

This report has been sponsored by the Pacific Islands Fisheries Science Center and provides the results of recent research efforts to ascertain the habitat use and foraging ecology of Hawaiian monk seals in the Northwestern Hawaiian Islands (NWHI). This work is a part of a research project involving a synthesis of all data available on the foraging behavior of Hawaiian monk seals in the NWHI. Subsequent publications of these results will involve a more thorough comparative analysis and interpretation of variation in individual and colony behaviors relative to variation in biotic and abiotic characteristics of marine habitats throughout the NWHI marine ecosystem.

This report was funded by contract AB133F-03-CN-0008. Because this report was prepared by an independent investigator, its statements, findings, conclusions, and recommendation do not necessarily reflect the official views of the National Marine Fisheries Service, NOAA, U.S. Department of Commerce.

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Marine Mammal Research Program
Protected Species Division
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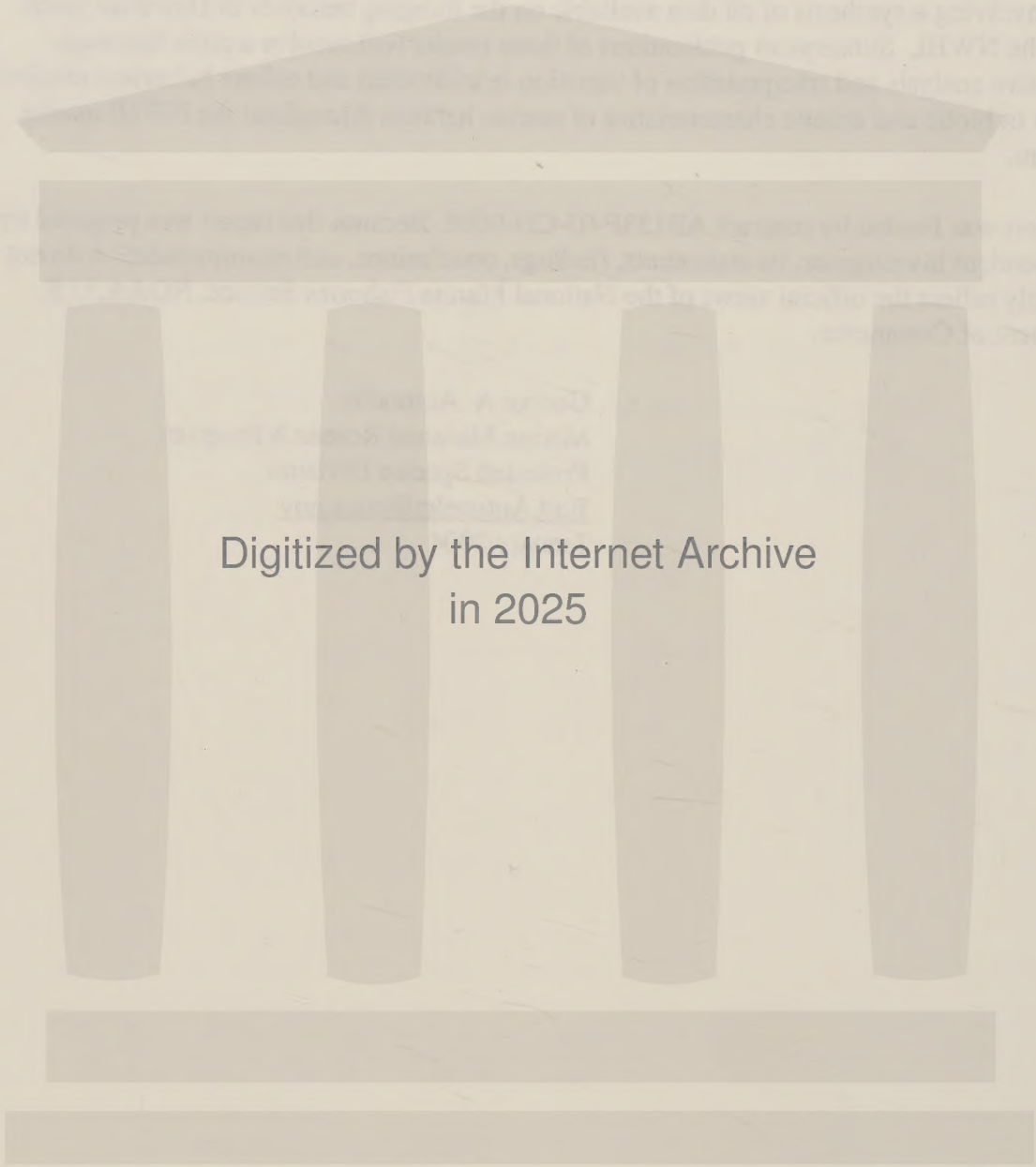
January 2004



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1. Introduction

The Hawaiian monk seal (*Monachus schauinslandi*) is endemic to the Hawaiian Islands Archipelago with principal colonies in the northwestern islands and reefs of the archipelago. Numbers of this species have declined about 11% annually since 1989, owing to low birth rates and poor survival of neonates and juveniles from a variety of known and unknown causes (e.g., Gilmartin and Eberhardt, 1995; Antonelis and Ragen, 997). The species now numbers around 1,300 to 1,400.

The National Marine Fisheries Service (NOAA, Dept. of Commerce), the U.S. administrative agency charged with overseeing the conservation and management of marine mammals, has posited that reductions in various prey species or alteration of the important biotic and abiotic habitats of Hawaiian monk seals may be among the more important causative factors in the species' decline. Consequently, the National Marine Fisheries Service (SWFSC, Honolulu Laboratory) initiated a research program to test this hypothesis and to construct a regulatory and management regime that may better conserve Hawaiian monk seals while also promoting prudent and effective use of marine resources by human ventures.

As one part of that research program, twenty-four satellite linked transmitters were attached to Hawaiian monk seals at Pearl and Hermes Reef (PHR) from October 25 through November 2, 1997 (Appendix I). The objectives of the study were to:

a. document the use of geographic and vertical foraging habitats by adult and juvenile monk seals near PHR using satellite-linked radio telemetry technology,

b. evaluate the comparative performance of satellite-linked radio transmitters of various power outputs and physical design, and

c. provide data on the foraging ecology of Hawaiian monk seals that breed at PHR (a stable or slight increasing colony) sufficient for comparison with patterns at other declining colonies (e.g., French Frigate Shoals).

2. Methods

A satellite linked-radio transmitter (PT = Platform Transmitter Terminal) was glued to the dorsal pelage of each of 6 juvenile (5 male, 1 female) and 18 adult (9 males, 9 females) Hawaiian monk seals at islands within PHR from 25 October through 2 November 1997. All PTTs attached to the adults were capable of recording and transmitting data on depth and duration of dives (in frequency histogram format; Appendix II); effective transmission power output was 400 W. The PTTs attached to juveniles had effective transmission power output of about 250 W.

Data on geographic and vertical movements of seals were collected, through the Argos Data Collection and Location Service (DCLS), either until the instruments failed or their batteries expired or until seals were recaptured and the instruments removed (Appendix III).

The Argos earth-orbiting satellite system and the Argos DCLS are described in detail elsewhere (e.g., Fancy *et al.*, 1988; Harris *et al.*, 1990; Stewart *et al.*, 1989; Stewart, 1997).

3. Results and Discussion

Instrument performance and tracking duration

Two of the 26 PTTs which were scheduled for deployment failed prior to deployment. Of the 24 PTTs that were deployed, 3 (24098, 24102, 24108) malfunctioned from apparently similar cause within 2-33 days of deployment; these 3 were recovered in February 1998 and confirmed to be non-functional. The antenna from one PTT (5421) sheared off at its base of insertion into the PTT housing 66 days after deployment. Contact was lost with 5 seals when the PTTs evidently fell off between 102 and 113 days after deployment (PTTs 5411, 5414, 24101, 24107, 24115 after 104 days, 102 days, 112 days, 108 days, and 113 days of tracking, respectively); one of those PTTs (24107) was later found on the beach at Grass Island. Another three PTTs were removed from juvenile seals in February 1998 because their batteries were expected to expire soon (5412, 5416, 5422).

Foraging movements

All but one seal foraged either within the fringing reef of PHR or just outside the reef along its northwestern bank (Fig. 1). Moreover, there appeared to be sexual and age-related geographic segregation throughout the monitoring period, though there was a small amount of overlap (Fig. 1). The dispersion of seals' foraging locations and the segregation appeared to be independent of the sites where seals were tagged. Juveniles foraged almost exclusively within the fringing reef of PHR and principally near Southeast Island and North Island (Figs.1, 2, 3, 4). Adult males foraged mostly just inside the southern rim of the fringing reef and just outside the fringing reef along the northwestern rim (Figures 1, 2, 3, 4), though two adult males (24104, 24108) did range out to about 15 miles of the southeast corner of the fringing reef (Fig. 3). Adult females foraged mostly within the center of the atoll and near the atoll's southwestern opening (Figs. 1, 2, 3, 4).

Diving patterns

Most dives were to depths of 8-40 m, though there was a secondary mode at 100-120m (Fig. 5). The secondary mode was absent among the three juvenile seals monitored (Figs. 6, 7, 8). Seven of the adult males dove only to depths of 60 m or less (Figs. 9, 10, 11, 12, 13, 16, 17), two (seals 24104 and 24108) made a substantial number of dives to depths of 80-140 m (Figs. 14, 15), and a third mode at 252-552 m was distinguishable in the records of one of those (Fig. 15).

Seven of the adult females rarely dove deeper than 40m (Figs. 18 through 25), whereas one (seal 24112) made a number of dives to depths of 60-140 m (Fig. 26).

The diving patterns of adult males at PHR during the non-breeding season were similar to those reported earlier by DeLong *et al.* (1984) for males during the breeding season at Lisianski Island. They were also generally similar to those reported for adult males foraging around French Frigate Shoals (Siniff and Abernathy, 1998), though fewer of the males at PHR, compared with French Frigate Shoals, made dives deeper than 40 m. Diving patterns of adult females at PHR were similar to those, though generally shallower, of females at French Frigate Shoals (cf. Siniff and Abernathy, 1998).

Overall, seals at PHR appear to forage in relatively shallow waters within or just outside the atoll. Nonetheless, seals appear to segregate by age and sex when foraging within this small atoll. This contrasts with seals at French Frigate Shoals which generally dive deeper, travel greater distances from haulout sites to forage, and do appear to segregate while foraging.

4. Conclusions and Recommendations

The shallow diving patterns and limited movements of Hawaiian monk seals at PHR suggests that seals may forage predominately on demersal and epibenthic prey and on other fish, cephalopod and invertebrate prey that take refuge in fringing coral reefs. The apparent differences in foraging effort between seals at French Frigate Shoals, where the population is declining, and at PHR, where it is not, suggests that the abundance and distribution of prey resources differs at these two colonies. Simultaneous and complementary studies of foraging patterns of seals at several colonies of various status and of marine resources near each colony are needed to better understand nutrient dynamics in these island marine communities to ensure the viability of the Hawaiian monk seal generally, and to guide management strategies for common use of marine resources by human and non-human predators in the northwestern Hawaiian islands.

5. Acknowledgments

This study was a collaborative effort between the National Marine Fisheries Service, Honolulu Laboratory, and Hubbs-Sea World Research Institute. The transmitter deployment effort was supported by the NOAA ship *Townsend Cromwell*. M. Craig and R. Boland served as Chief Scientists during the cruise and M. Craig, M. Shaw, K. Raum-Suryan, and C. Monet assisted in all phases of instrument deployment. The contract to Hubb-Sea World Research Institute was administered by Dr. G. Antonelis at the NMFS Honolulu Laboratory. Drs. G. Antonelis and T. Ragen constructed the initial study design and plans for field effort. The research was authorized under the U.S. Marine Mammal Protection Act (16 U.S.C. §1361 *et seq.*), Scientific Research Permit No. 848-1335.

6. Literature Cited

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Siniff, D.B. and Abernathy, K. 1998. Investigations of Hawaiian monk seal, Monachus schauinslandi, pelagic habitat use: range and diving behavior. Final Report to NMFS/SWFSC, Saltonstall-Kennedy Grant No. NA67FD0058.

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Stewart, B.S. 1997. Ontogeny of differential migration and sexual segregation in northern elephant seals. Journal of Mammalogy 78:1101-1116.

Figure 1. Foraging locations of Hawaiian monk seals at PHR.

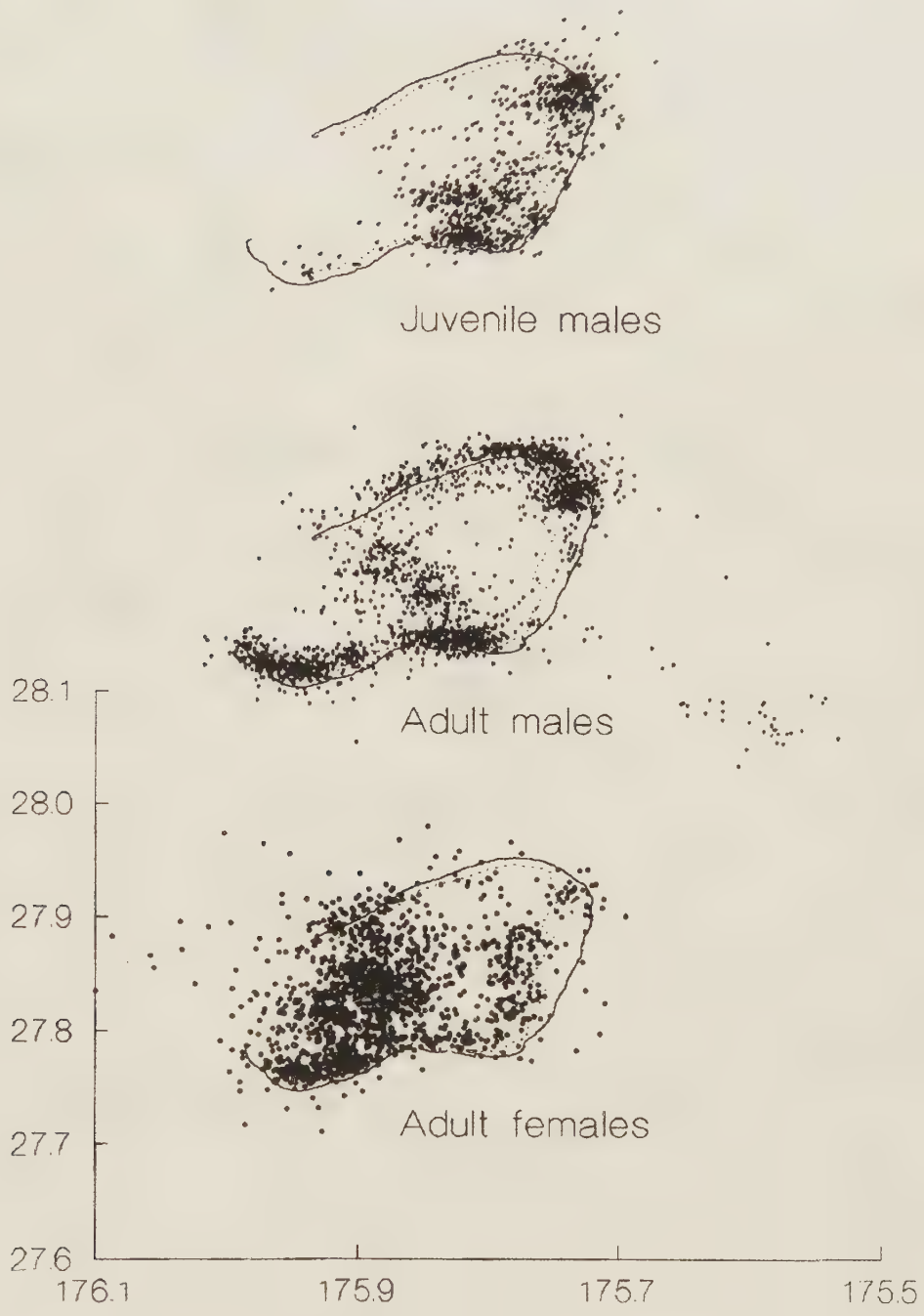


Figure 2. Foraging locations of individual Hawaiian monk seals at PHR.

Figure 3. Foraging locations of individual Hawaiian monk seals at PHR.

Figure 4. Foraging locations of individual Hawaiian monk seals at PHR.

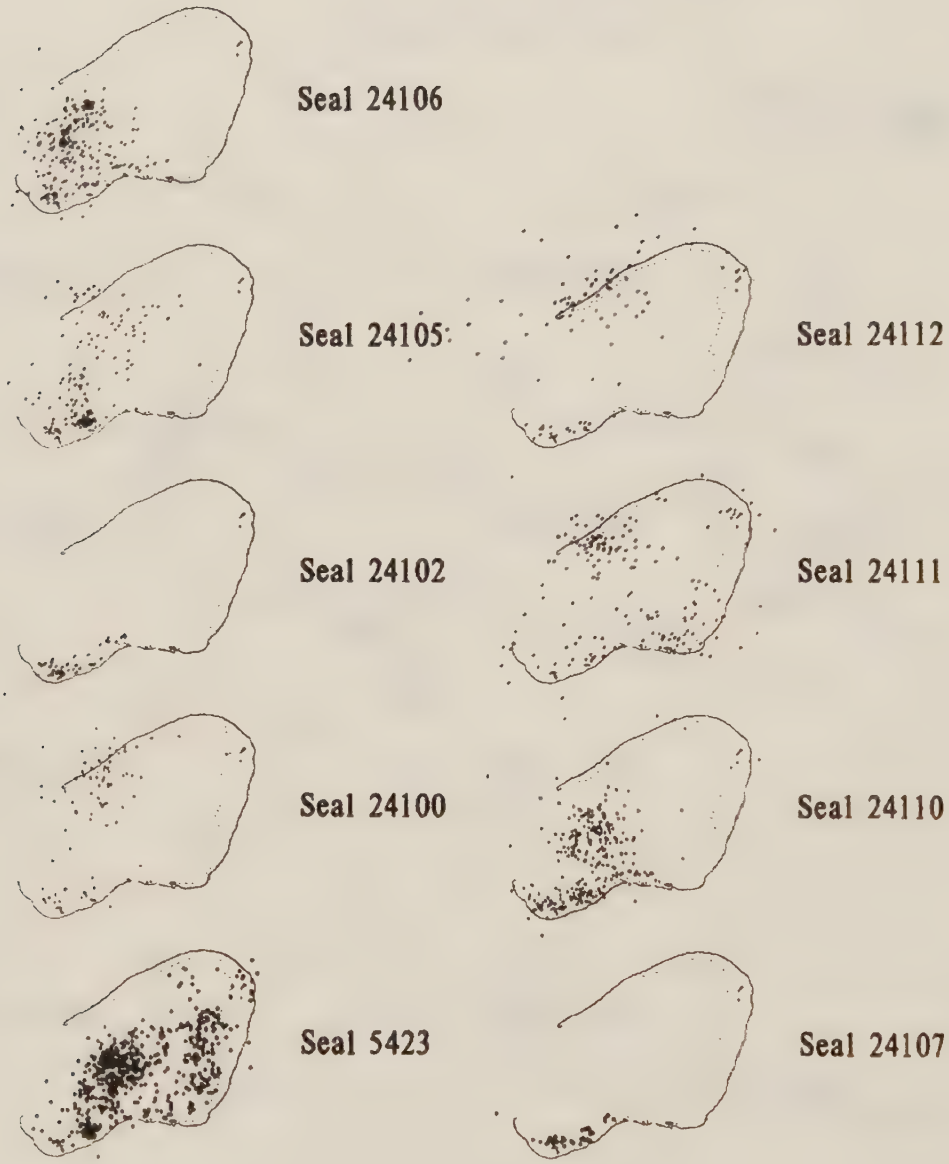


Figure 5. Depth of dives for all Hawaiian monk seals monitored at PHR.

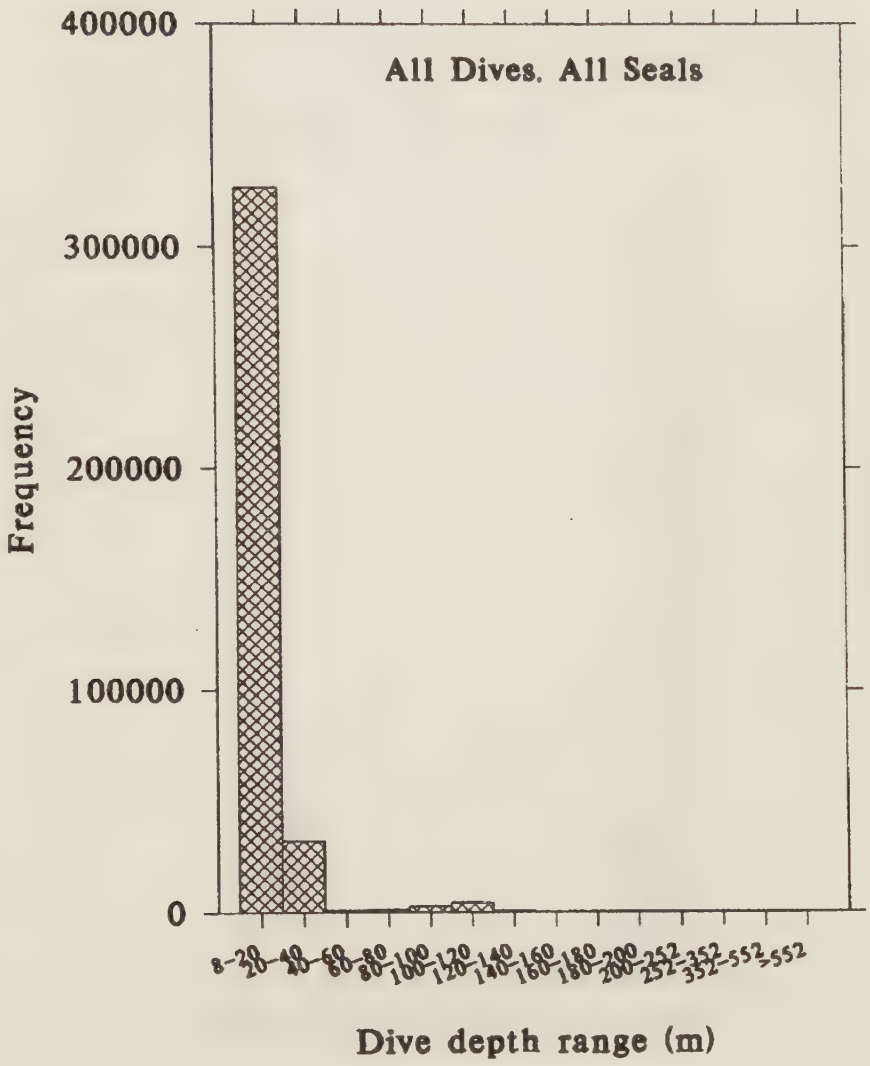


Figure 6. Depth of dives for seal 5416 (juvenile male) at PHR.

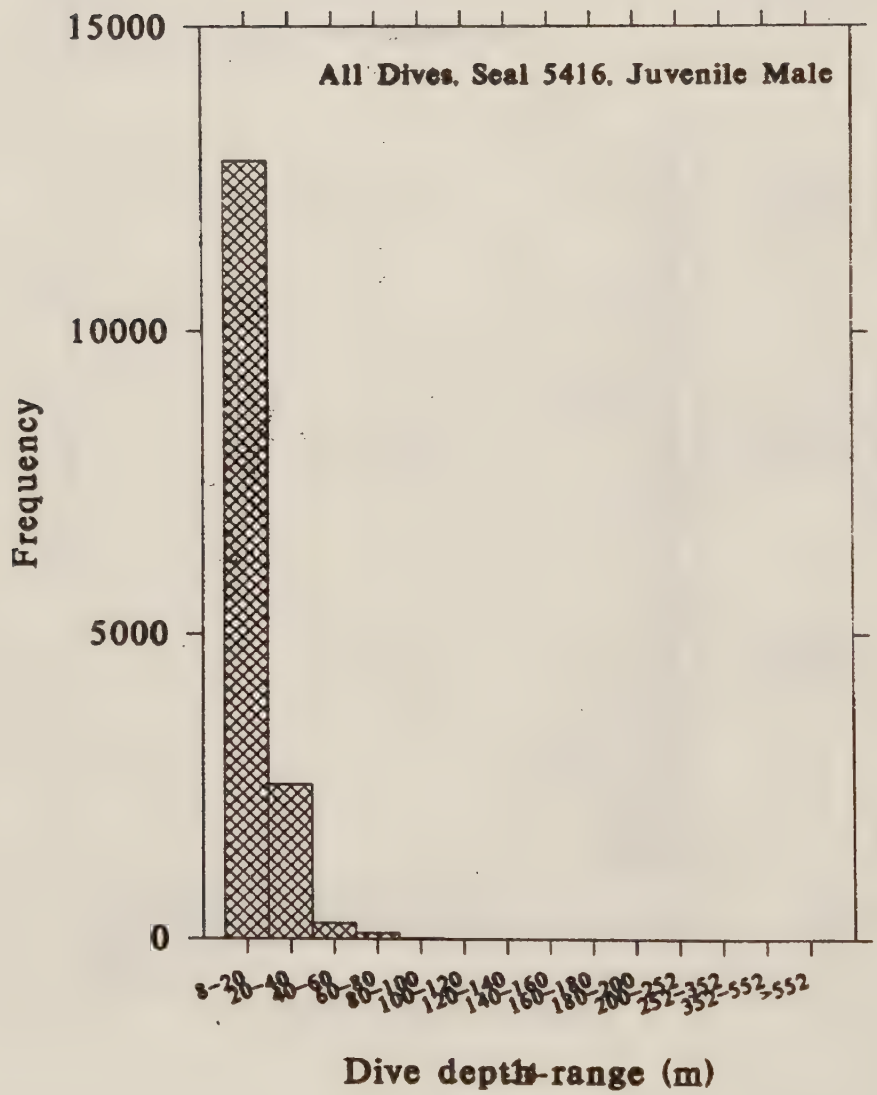


Figure 7. Depth of dives for seal 5421 (juvenile male) at PHR.

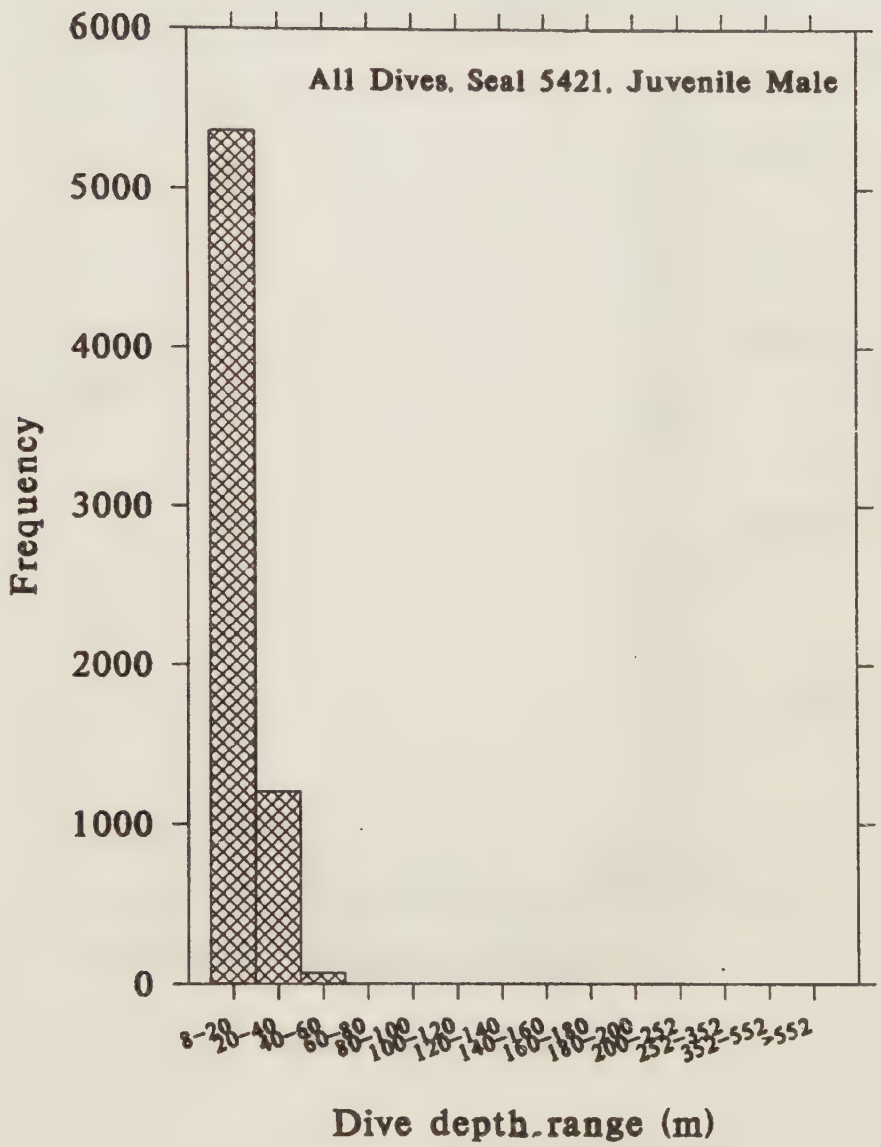


Figure 8. Depth of dives for seal 5422 (juvenile female) at PHR.

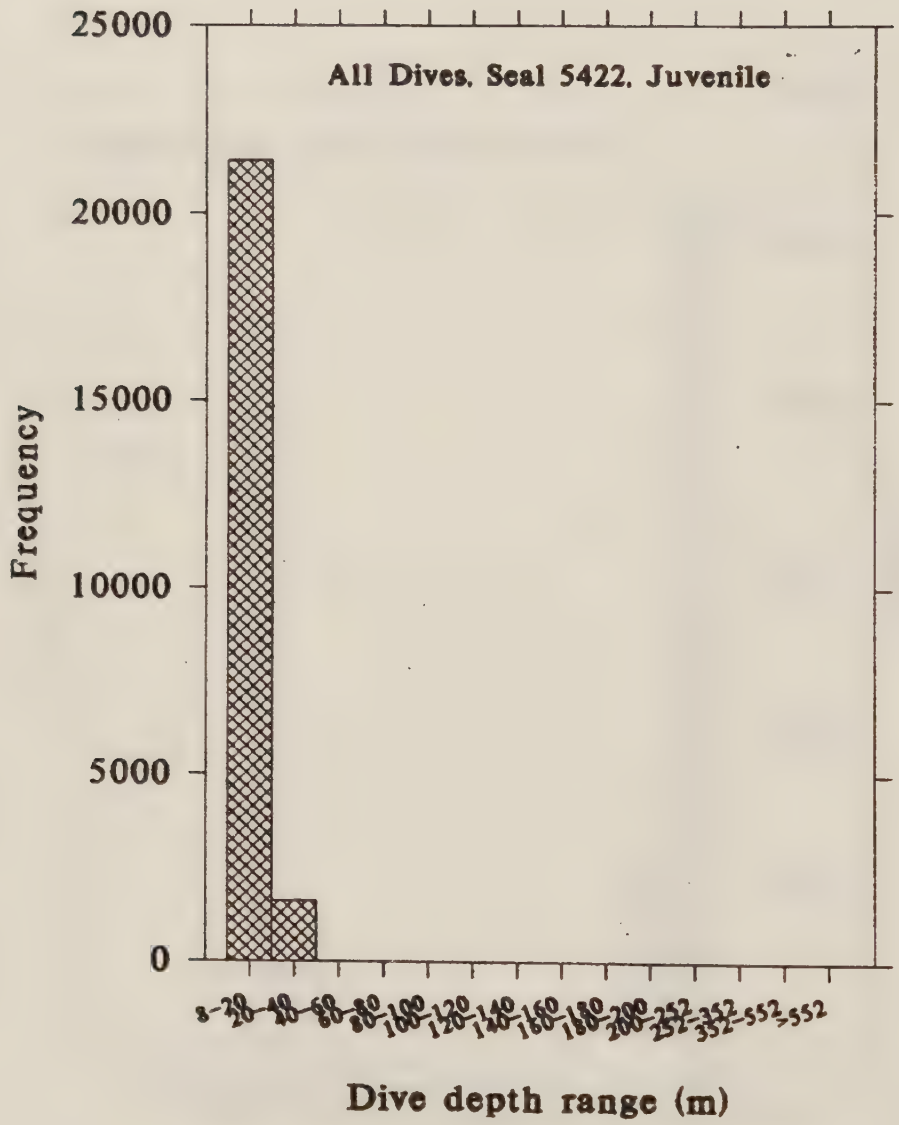


Figure 9. Depth of dives for seal 5424 (adult male) at PHR.

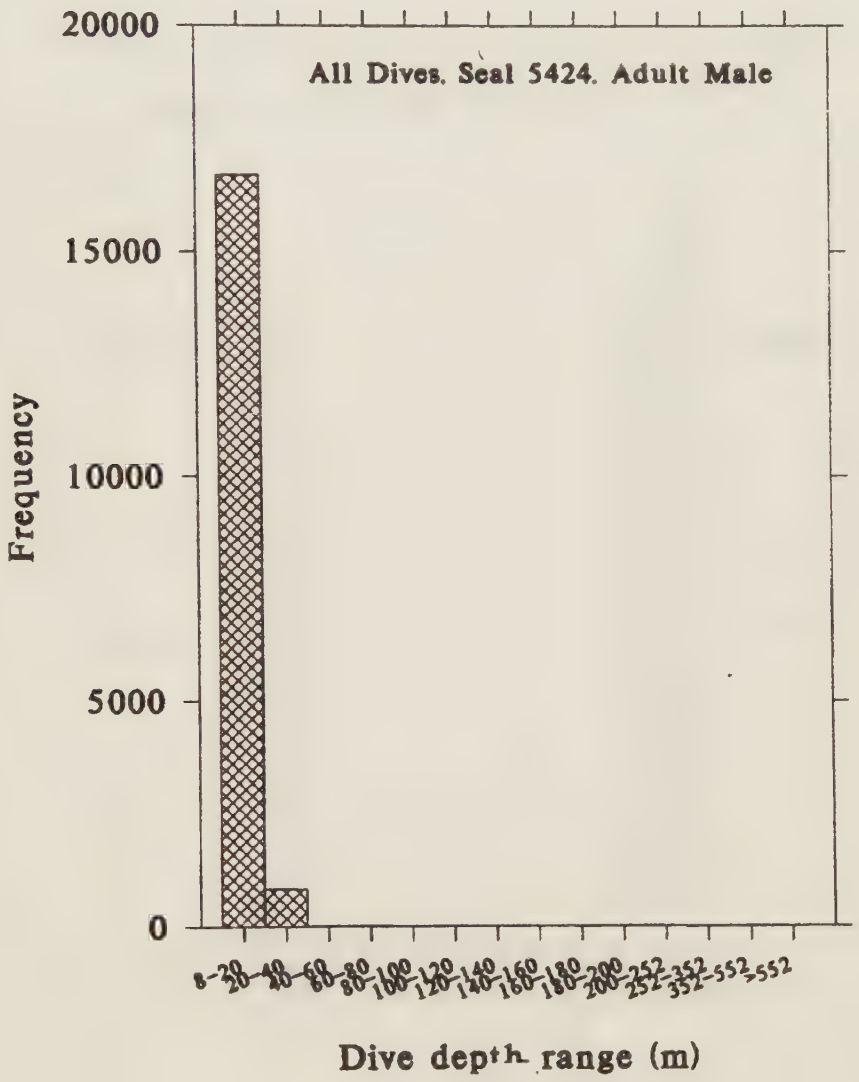


Figure 10. Depth of dives for seal 24098 (adult male) at PHR.

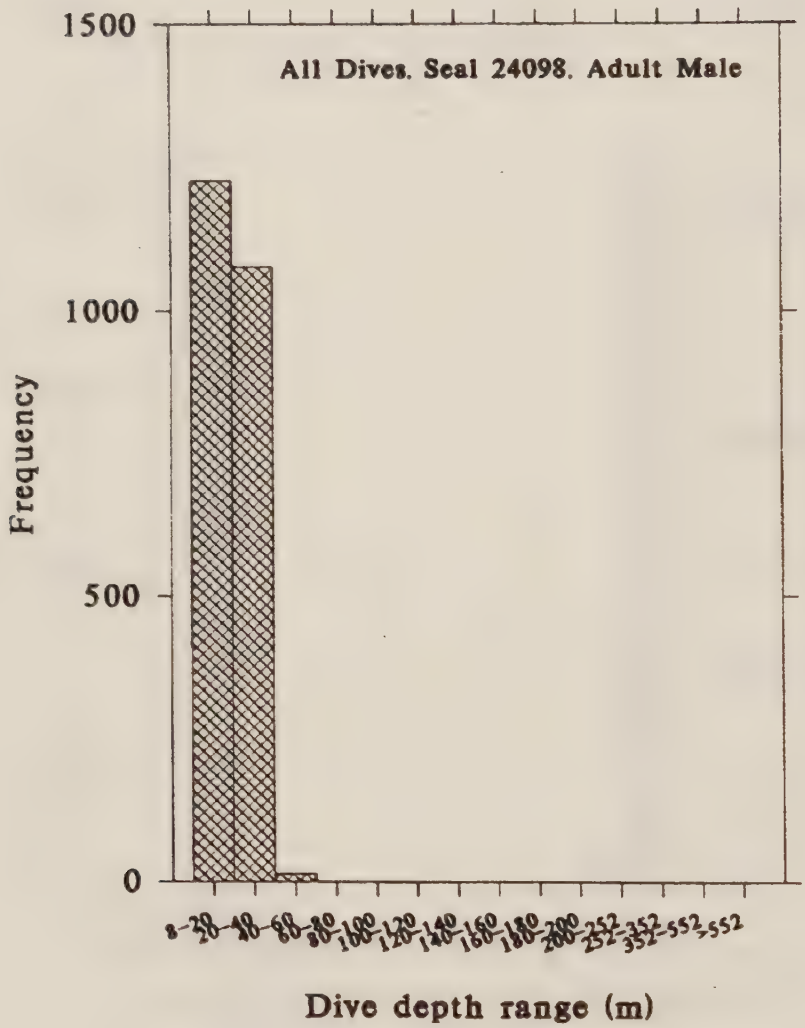


Figure 11. Depth of dives for seal 24099 (adult male) at PHR.

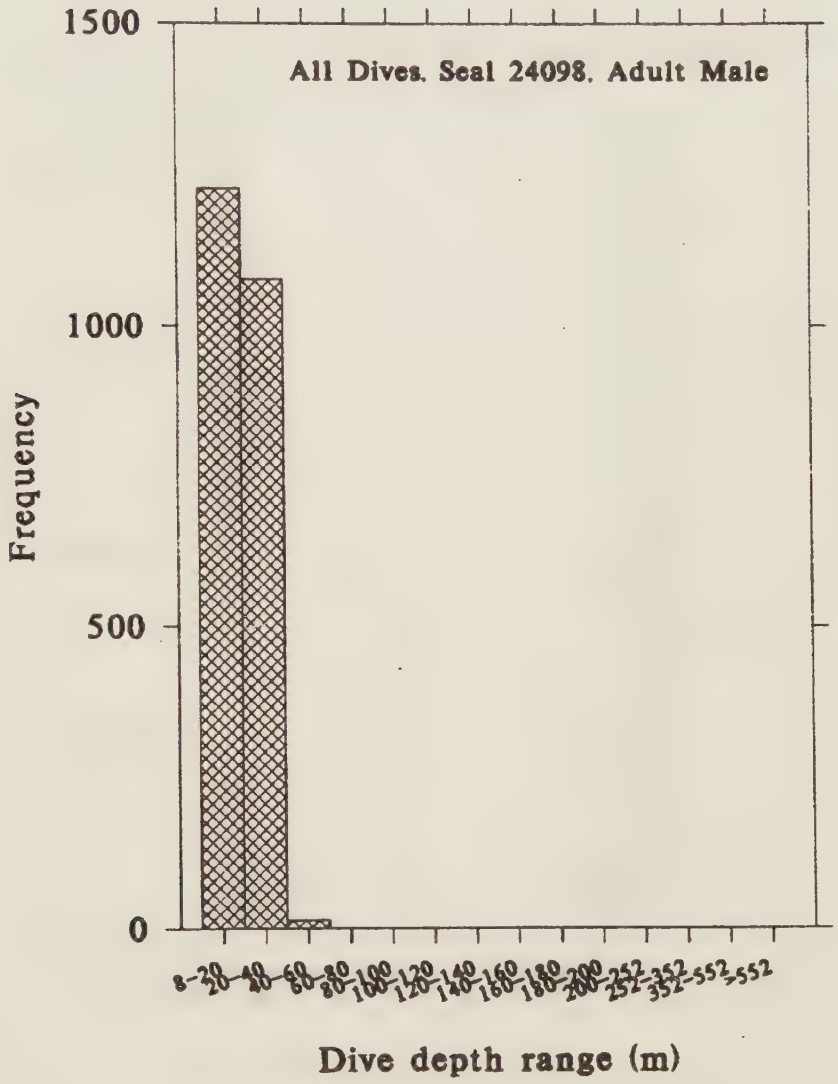


Figure 12. Depth of dives for seal 24101 (adult male) at PHR.

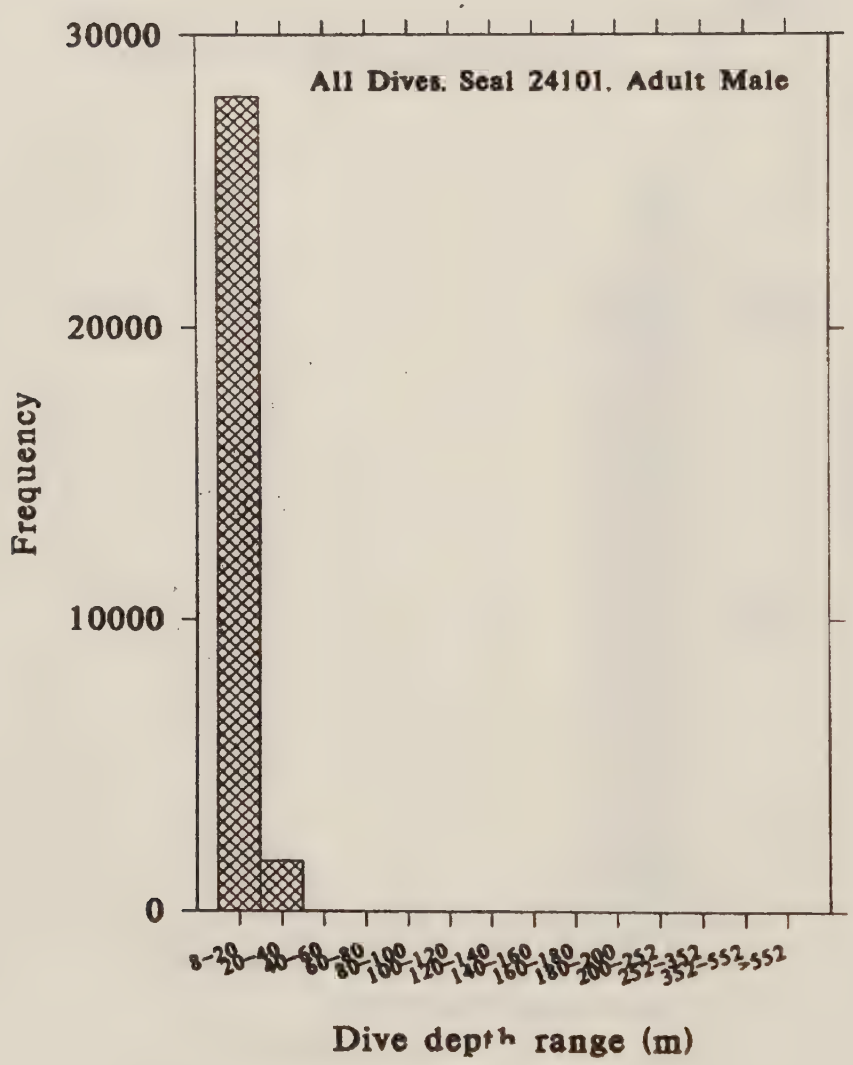


Figure 13. Depth of dives for seal 24103 (adult male) at PHR.

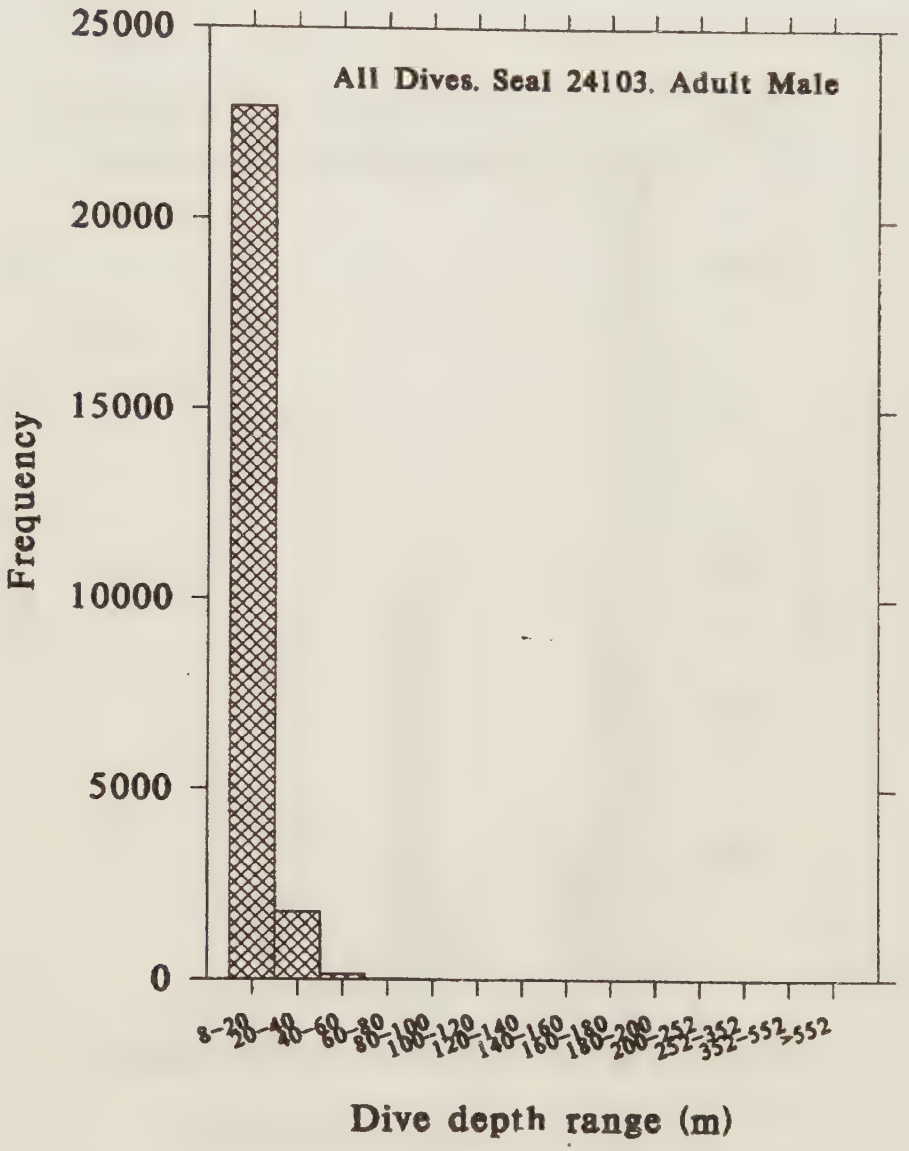


Figure 14. Depth of dives for seal 24104 (adult male) at PHR.

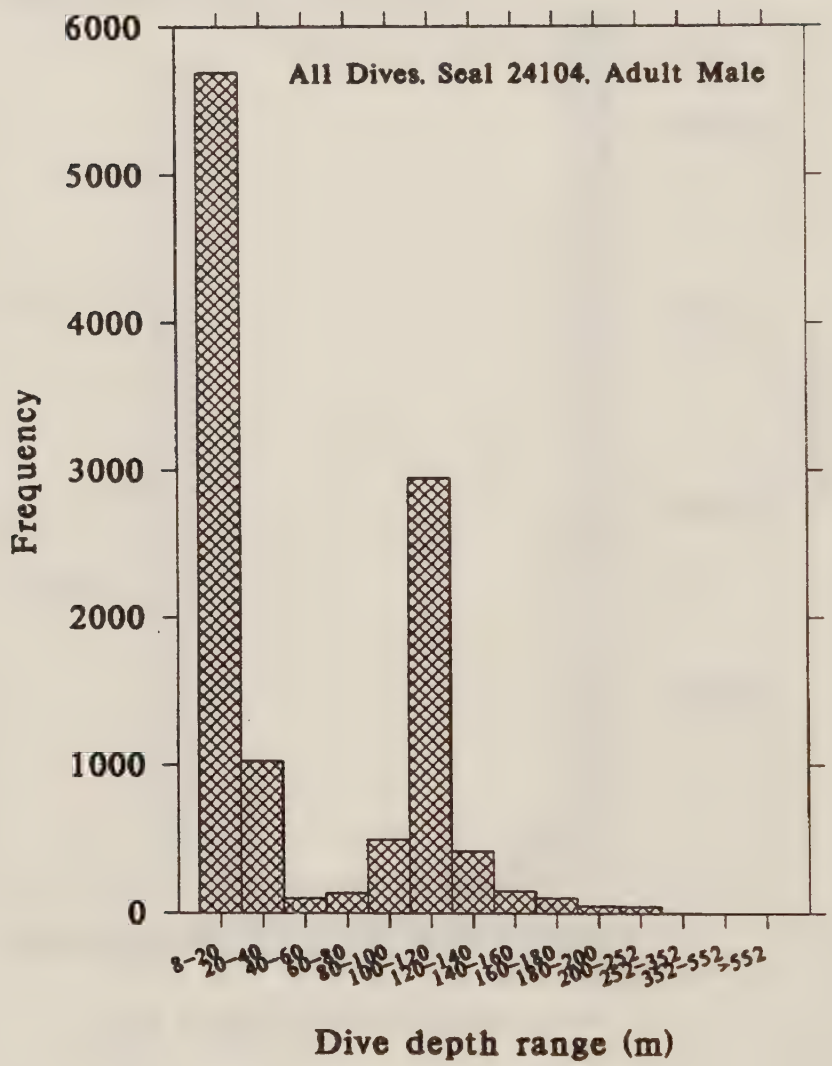


Figure 15. Depth of dives for seal 24108 (adult male) at PHR.

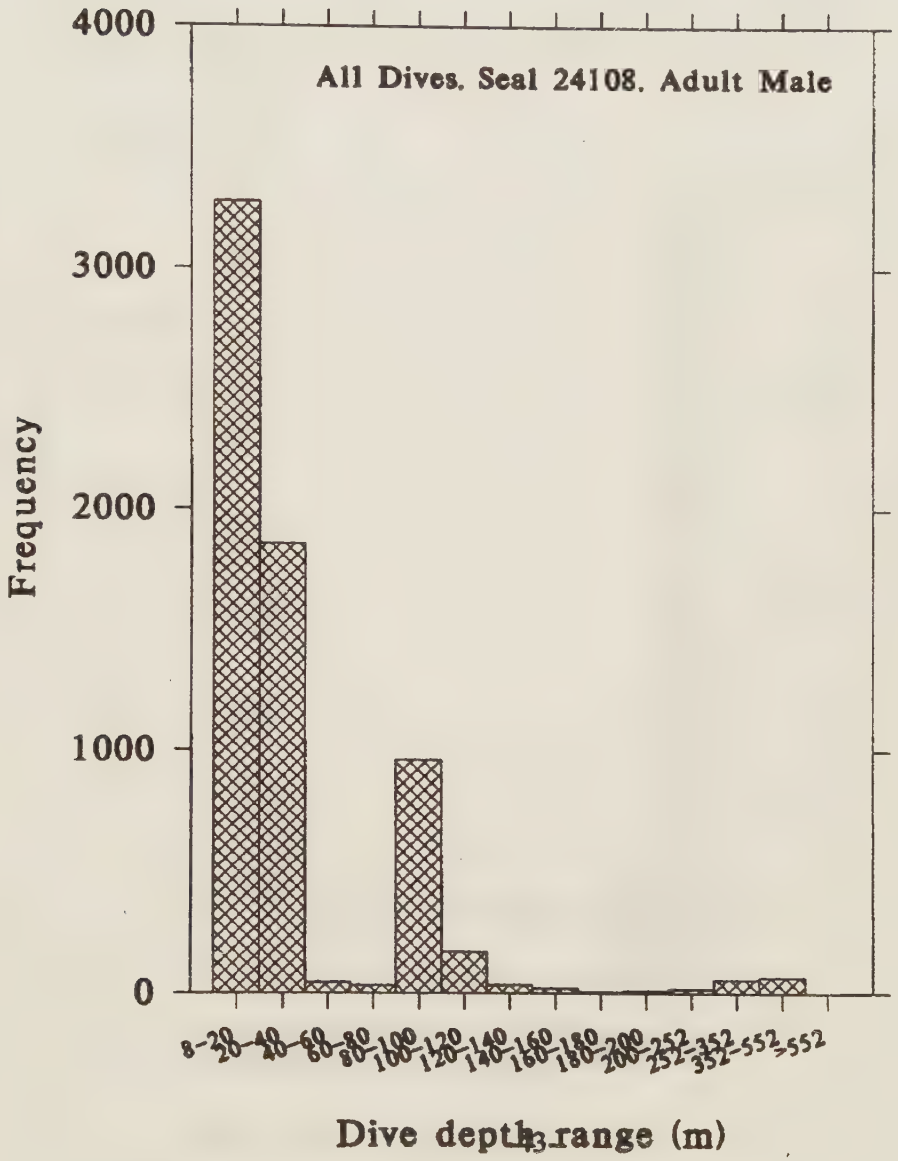


Figure 16. Depth of dives for seal 24113 (adult male) at PHR.

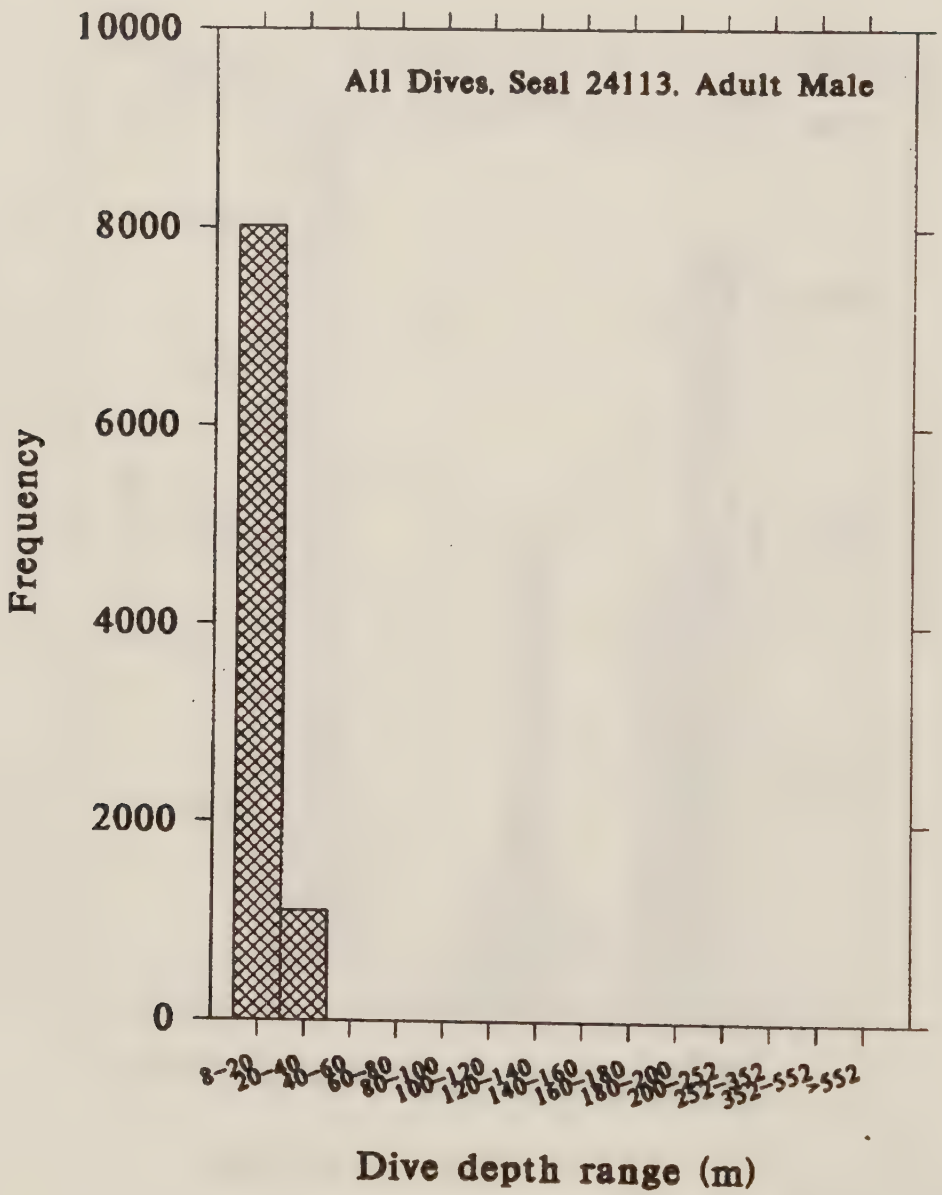


Figure 17. Depth of dives for seal 24115 (adult male) at PHR.

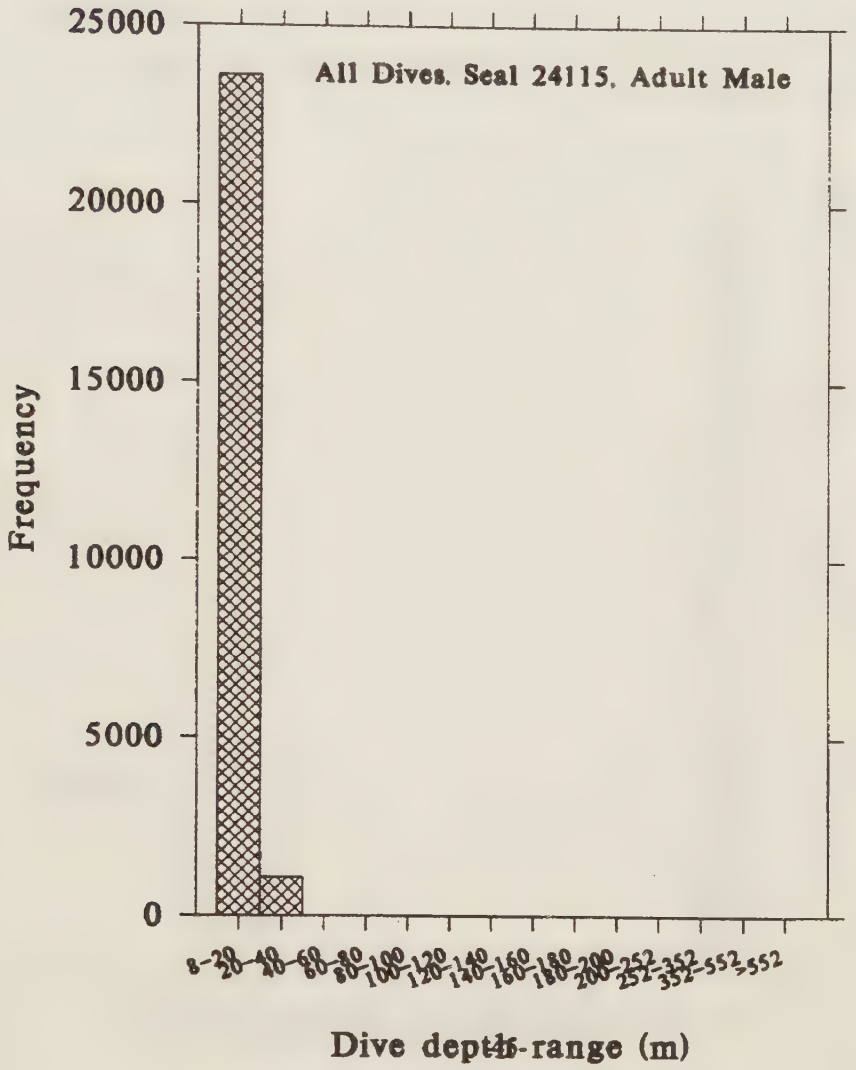


Figure 18. Depth of dives for seal 5423 (adult female) at PHR.

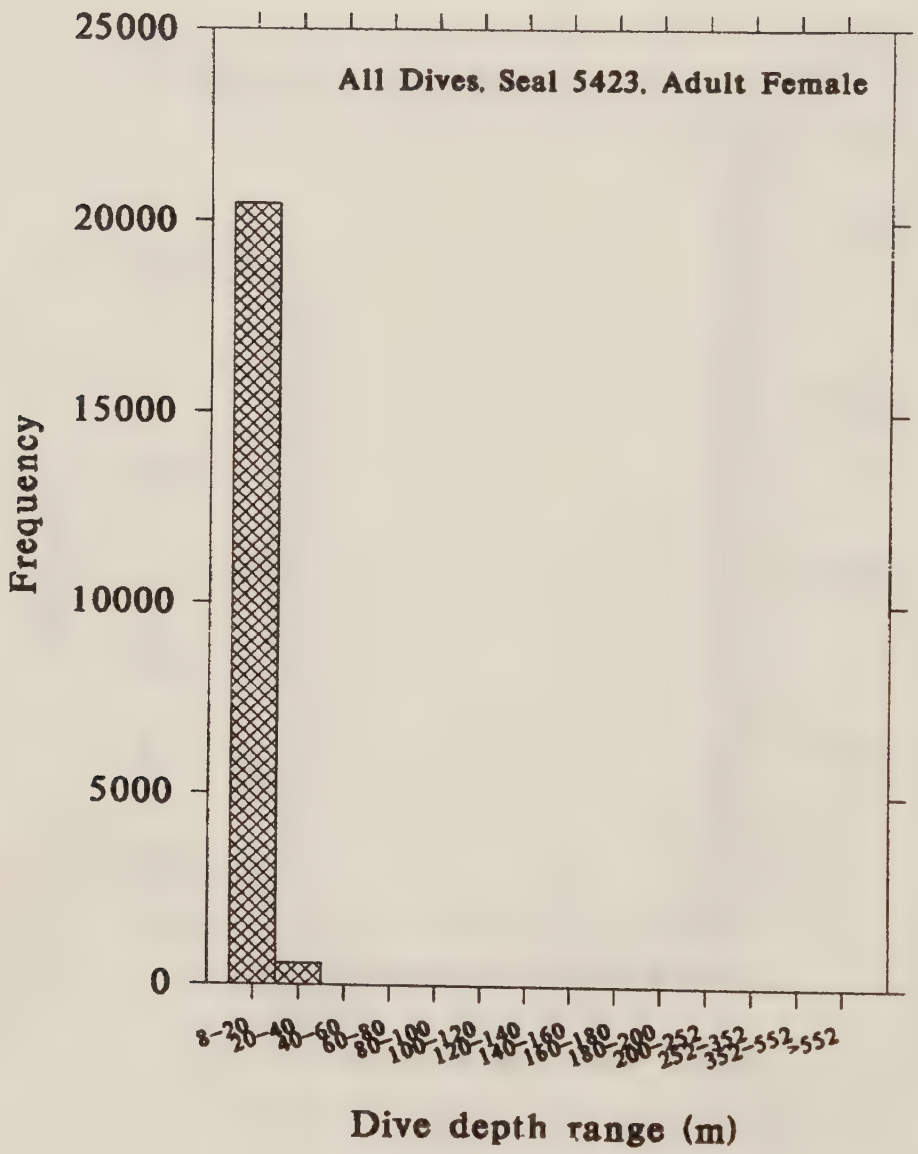


Figure 19. Depth of dives for seal 24100 (adult female) at PHR.

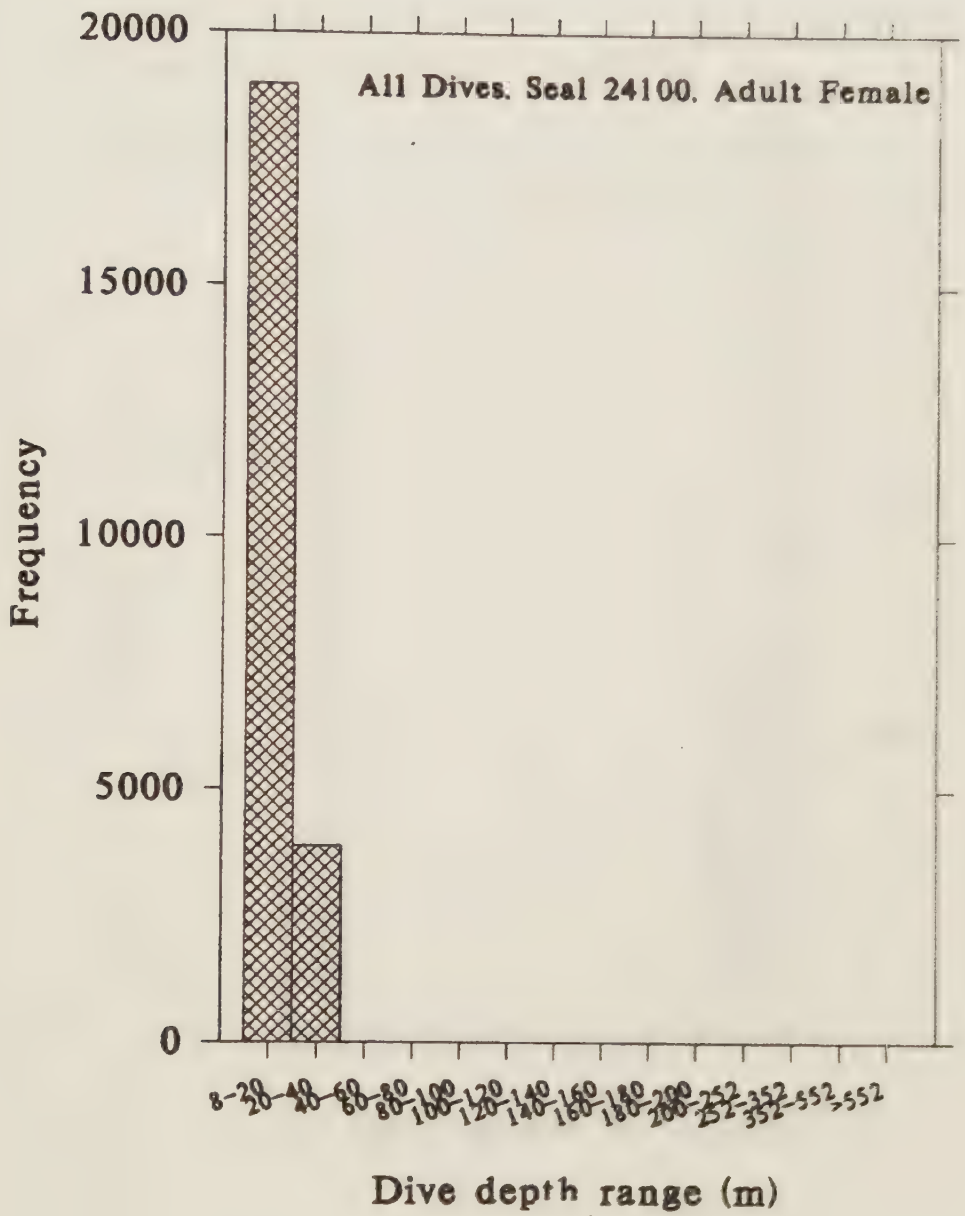


Figure 20. Depth of dives for seal 24102 (adult female) at PHR.

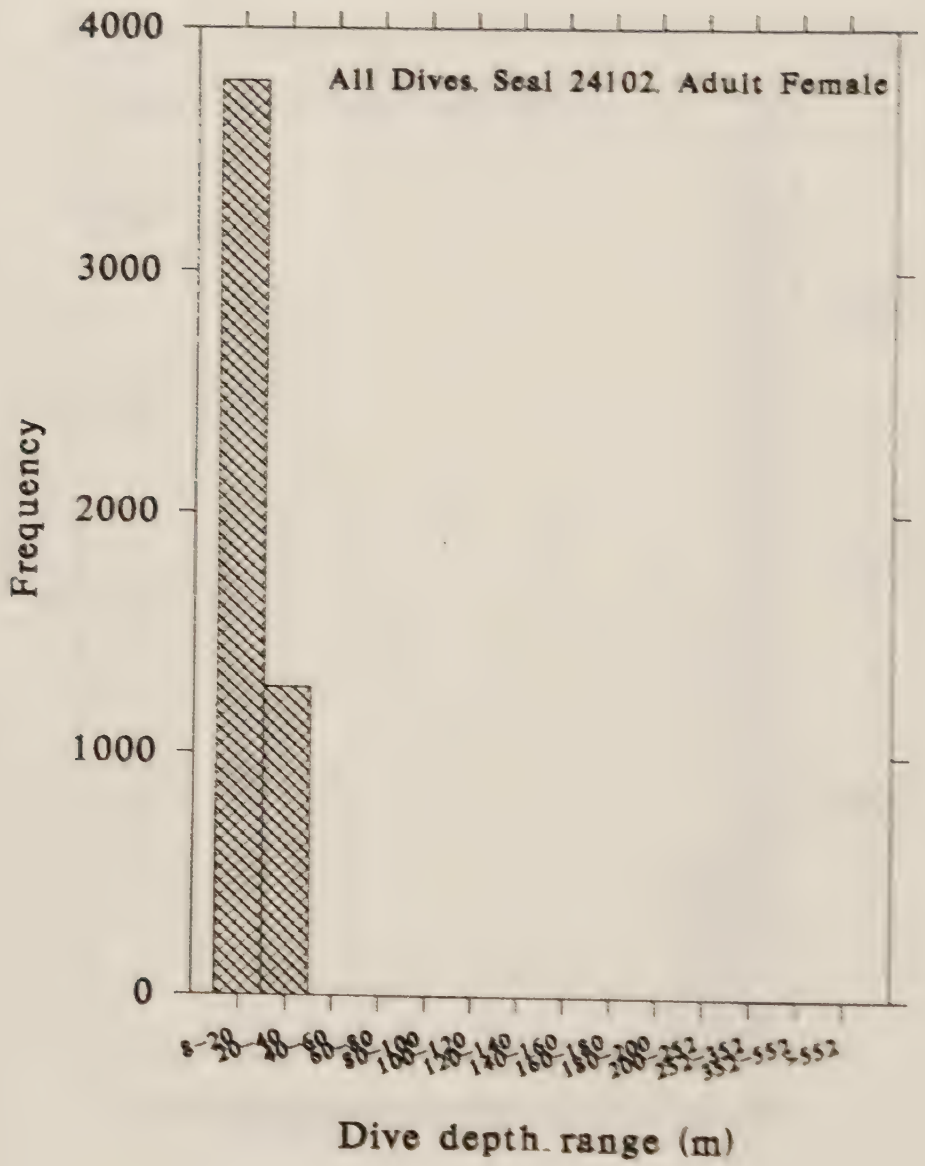


Figure 21. Depth of dives for seal 24105 (adult female) at PHR.

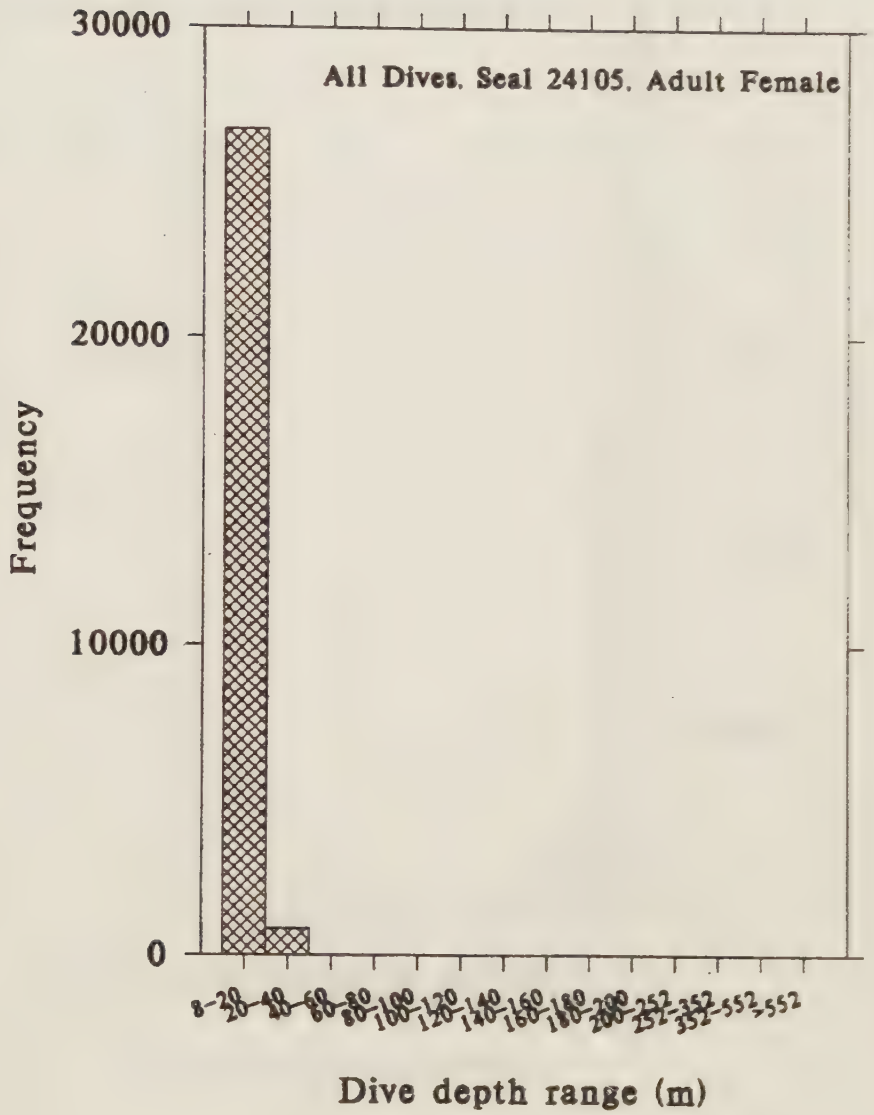


Figure 22. Depth of dives for seal 24106 (adult female) at PHR.

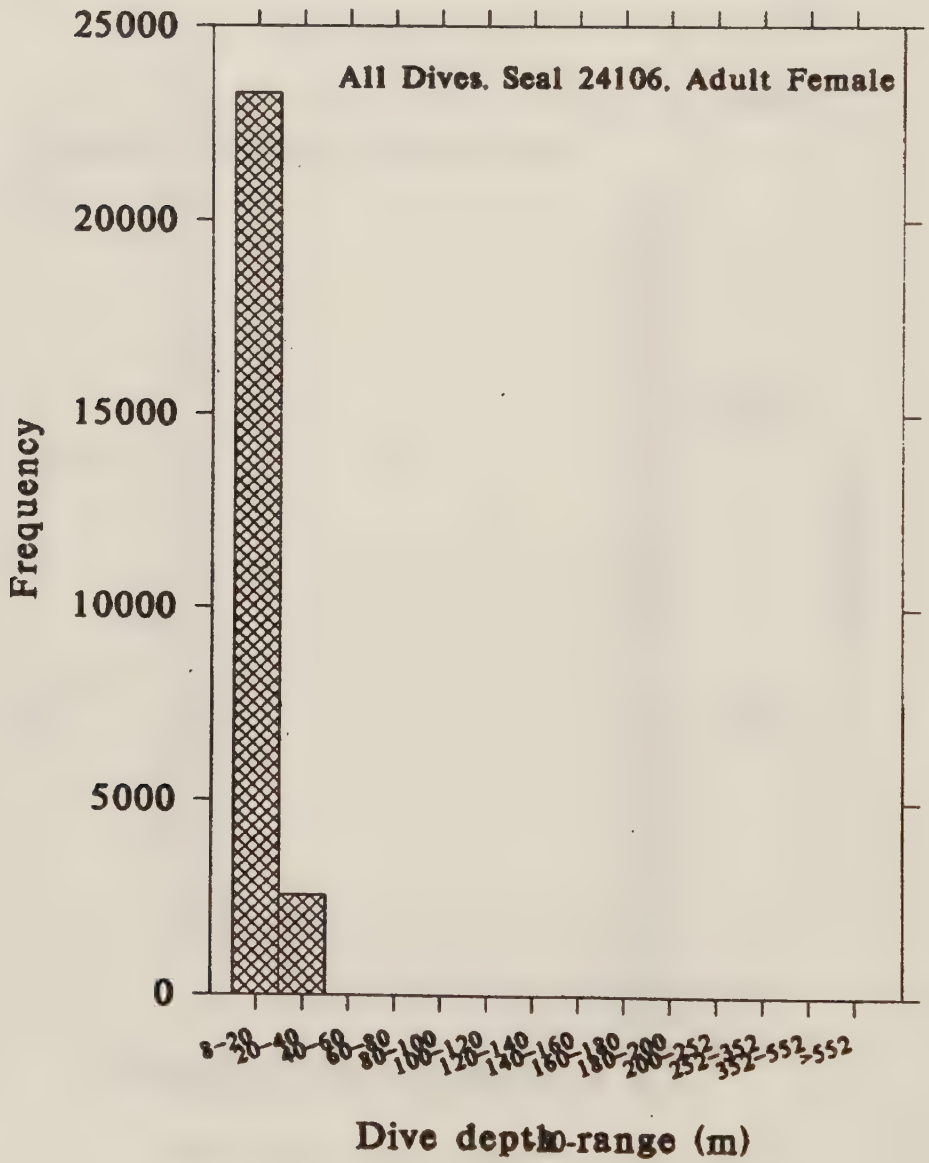


Figure 23. Depth of dives for seal 24107 (adult female) at PHR.

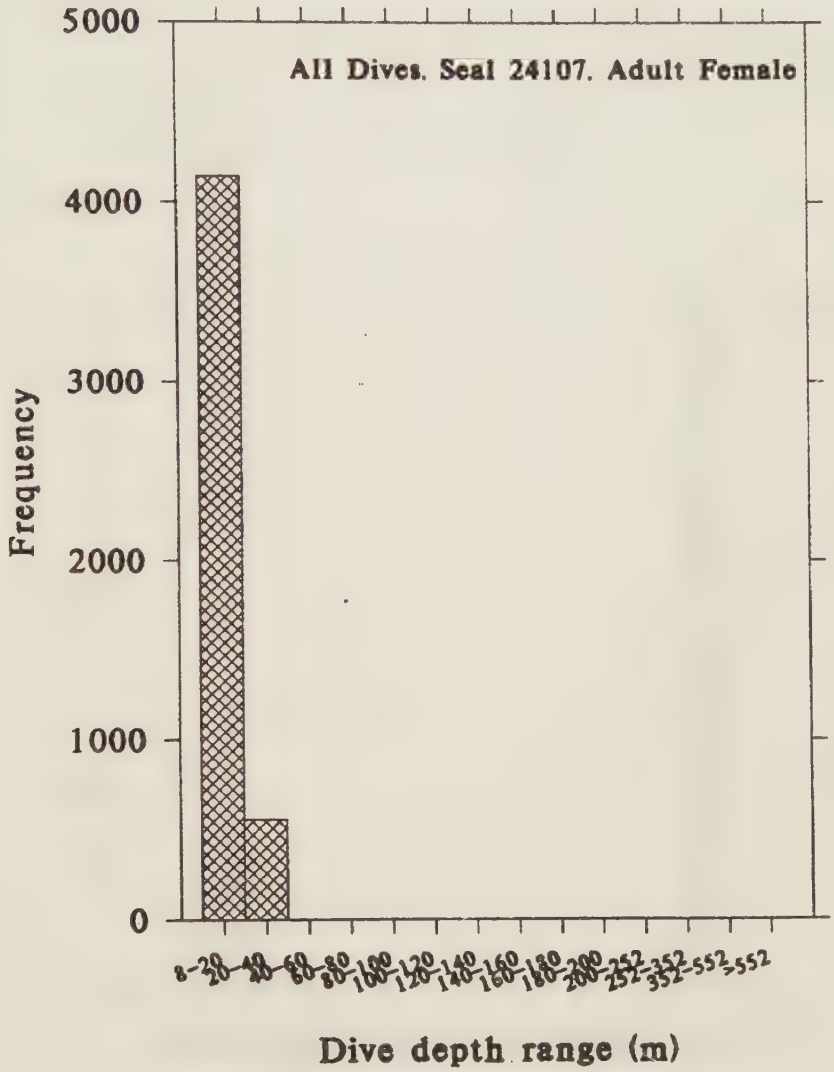


Figure 24. Depth of dives for seal 24110 (adult female) at PHR.

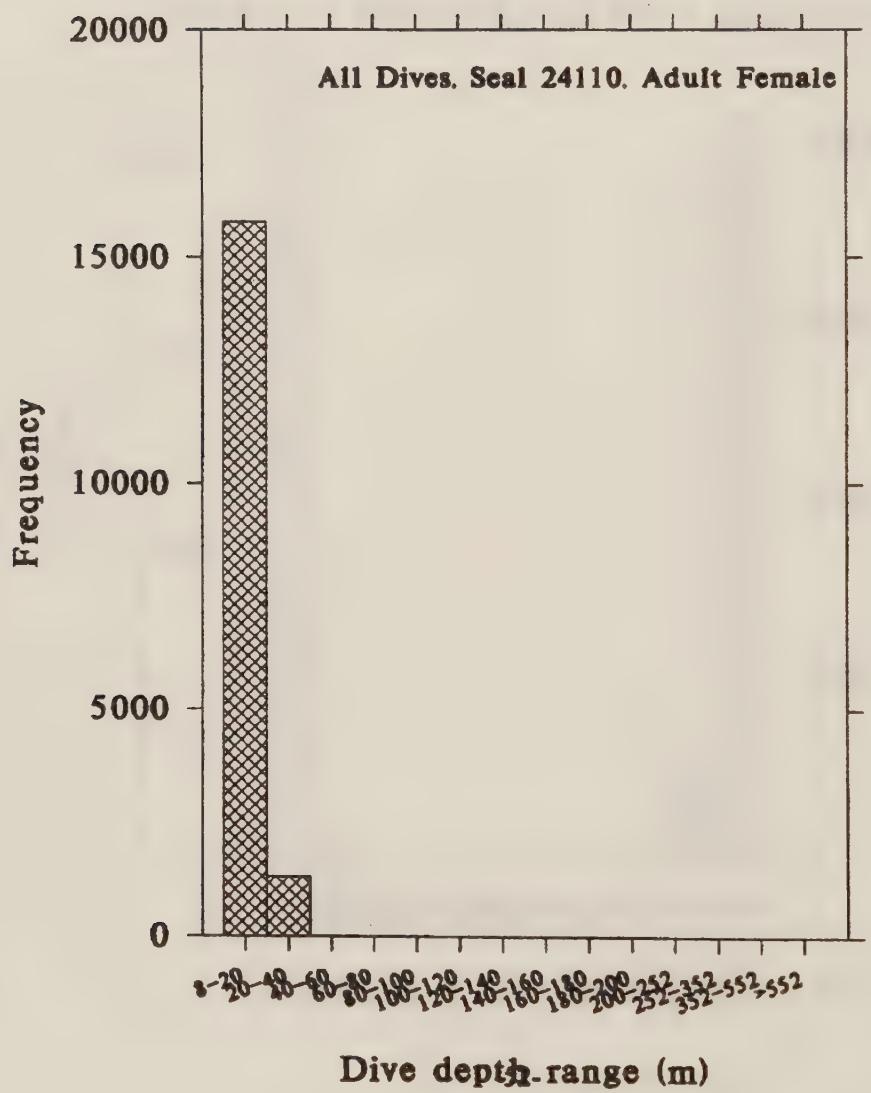


Figure 25. Depth of dives for seal 24111 (adult female) at PHR.

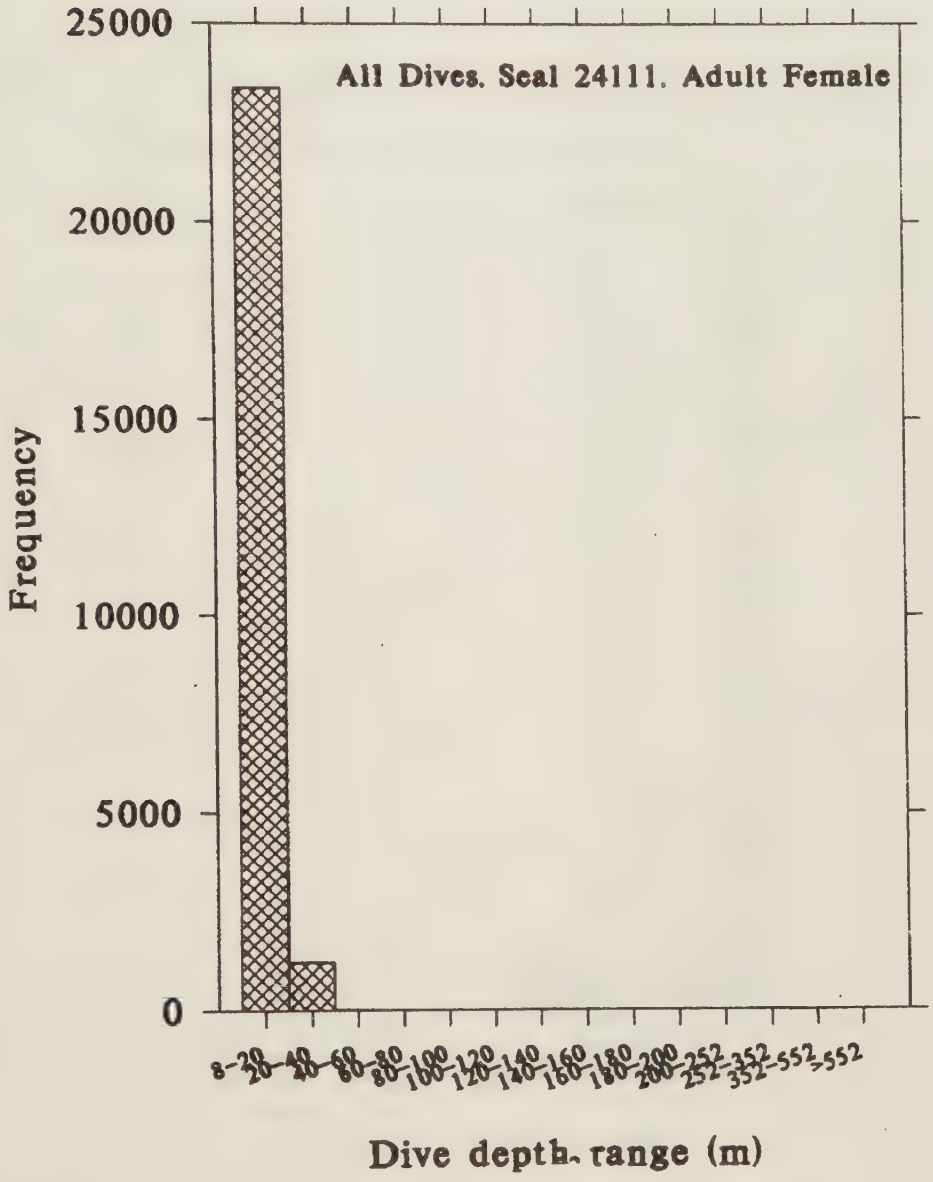
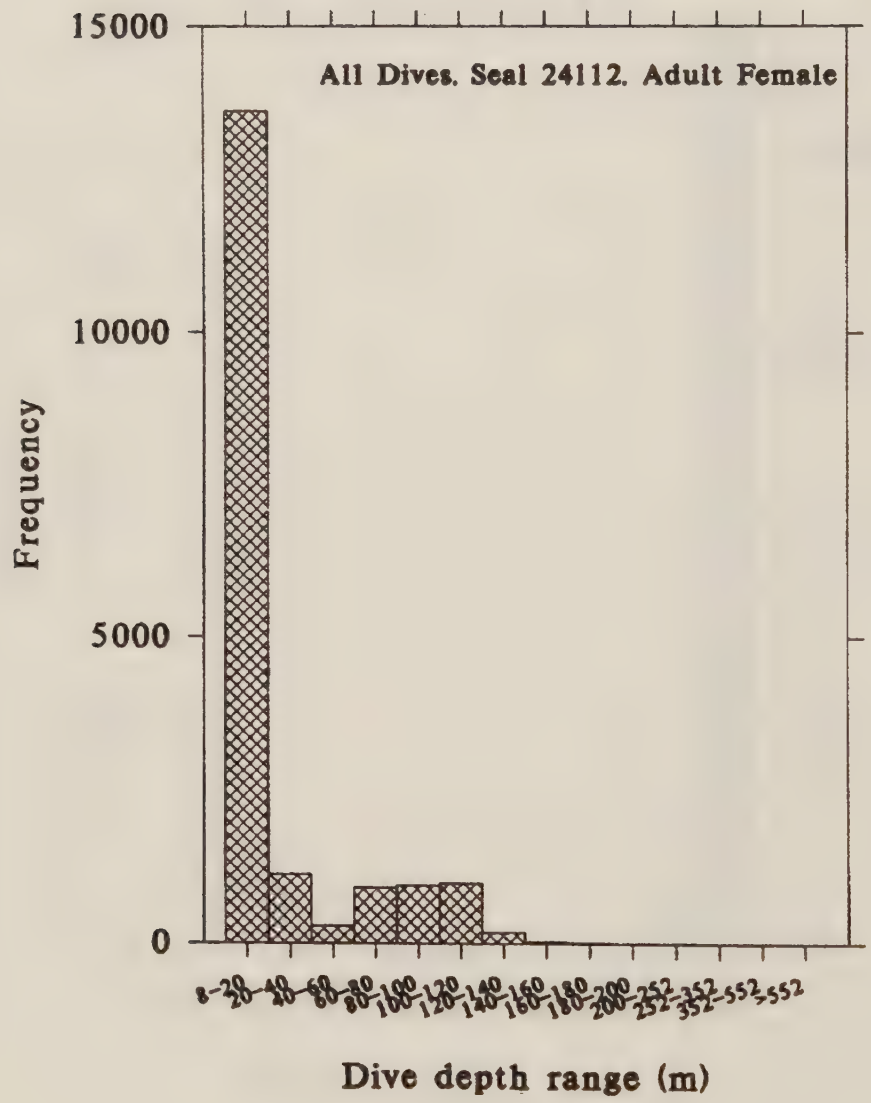


Figure 26. Depth of dives for seal 24112 (adult female) at PHR.



7. Appendices

7.1. Appendix I. Setup protocols for satellite-linked time depth recorders.

1. Unit number: 97-611. ARGOS geolocation id = 5416 Unit identifier = ms97611975416.

Time (GMT) is 03:26:31.47.
SL-TDR> d
Date (GMT) is 23 October 1997
SL-TDR> v
Battery voltage under light load = 6.045 Volts.
SL-TDR> v
Battery voltage under light load = 6.014 Volts.
SL-TDR> va3
Battery voltage under light load = 6.014 Volts.
Battery voltage under light load = 6.045 Volts.
Battery voltage under light load = 6.045 Volts.
SL-TDR> a3
S.W. Resistance = 255, Depth (m) = 0
S.W. Resistance = 255, Depth (m) = 0
S.W. Resistance = 255, Depth (m) = -4
SL-TDR> o
Do you wish to allow any unused portion of your daily transmission allowance
to be added to the next day's allowance? [n]
Do you wish to be able to set the daily transmission allowance on a
month-by-month basis? [n]
Enter number (0/6/10/14) of depth histogram bins: [14]
Enter number (0/6/10/14) of duration histogram bins: [14]
Enter number (0/6/10/14) of time-at-depth histogram bins: [14]
How many histograms or timeline messages should be encoded into
each transmission (1/2) [1]
Will the instrument be deployed in an area where fresh and salt water may
exist in discrete layers? [n]
SL-TDR>
SL-TDR> e
It is strongly recommended that you log the following information to a disk
file so that you have a permanent copy of this setup. In PROCOMM you do this
by pressing the ALT-F1 key combination. You will then be prompted for a
filename, a suggested name is 97-611.SET
After you have entered a filename, press return to continue.
SLTDR version: 3.14a
F6020E140404000F01001FFD810A0100
00010100000101000000000000010100
00010100000000005025010050400000
0139372D363131FF000A0400000A0400
000A040000000100000001000000100
000A0A0301000100010002000000000
FA000000000000000000000000000000
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30030E61000102037EFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFFF054A26FF
6D733937363131393735343136FFFFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF

Quarter-Watt, Microprocessor-controlled Satellite-linked Time-Depth Recorder.
Unit measures depth from 0 to 980 meters with a resolution of 4 meters
Software version 3.14a. Unit number: 97-611. ARGOS geolocation id = 5416
Unit identifier = ms97611975416. Unit started at 03:25:01 on 23/10/97
Time (GMT) is 03:26:50.08. Date (GMT) is 23 October 1997
Shallowest depth to be considered a "dive" = 8 meters
Deepest depth for accumulating surface-timelines (0=dry only) = 4 meters
SLTDR uses 1-sec / ¼-sec wakeups when shallower than 40 / 12 meters
Local time [0-23 hours] corresponding to 00h UT (GMT): 14
Transmission intervals (at-sea / on-land) = 00:40.50 / 01:25.50
SLTDR will use on-land interval after 10 consecutive dry transmissions
SLTDR will suspend transmissions after 4 hours "hauled-out". "Haul-out" ends
after SLTDR is "wet" for 4 successive at-sea transmission intervals
Transmissions will be duty cycled with 1 day on and 0 days off
Daily allowance (1-message transmissions; unused xmits don't accumulate) = 250
STATUS will be transmitted every 20 messages.
Blocks of Time-Lines will be transmitted every 48 messages.
Hours when SLTDR transmits: 01-02,05-06,13-14,17-18
Upper limits of maximum-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
Upper limits of dive-duration histogram bins are:
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 25, 30, 40, ∞ minutes
Upper limits of time-at-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
**** Check these parameters carefully ****. Ready to deploy? y
Type D to archive depth readings, H to archive histograms: h

Unit is ready for deployment, disconnect cable and go for it...

2. Unit number: 97-612. ARGOS geolocation id = 5421 Unit identifier = ms97612975421.

Time (GMT) is 03:21:40.10.
SL-TDR> d
Date (GMT) is 23 October 1997
SL-TDR> v
Battery voltage under light load = 5.983 Volts.
SL-TDR> v
Battery voltage under light load = 5.983 Volts.
SL-TDR> a3
S.W. Resistance = 255, Depth (m) = 0
S.W. Resistance = 255, Depth (m) = 0
S.W. Resistance = 255, Depth (m) = 0
SL-TDR> o
Do you wish to allow any unused portion of your daily transmission allowance
to be added to the next day's allowance? [n]
Do you wish to be able to set the daily transmission allowance on a
month-by-month basis? [n]
Enter number (0/6/10/14) of depth histogram bins: [14]
Enter number (0/6/10/14) of duration histogram bins: [14]
Enter number (0/6/10/14) of time-at-depth histogram bins: [14]
How many histograms or timeline messages should be encoded into
each transmission (1/2) [1]
Will the instrument be deployed in an area where fresh and salt water may
exist in discrete layers? [n]
SL-TDR> e
It is strongly recommended that you log the following information to a disk
file so that you have a permanent copy of this setup. In PROCOMM you do this
by pressing the ALT-F1 key combination. You will then be prompted for a
filename, a suggested name is 97-612.SET
After you have entered a filename, press return to continue.
SLTDR version: 3.14a
82020E140404000F01001FFD7F0A0100
00010100000101000000000000010100
00010100000000000024010000390000
0139372D363132FF000A0400000A0400
000A040000000100000010000000100
000A0A0301000100010002000000000
FA000000000000000000000000000000
00000000000000000000000407020015
050A0F14191E23282D323F588AFF000E
020406080A0C0E101214191E28FF000E
050A0F14191E23282D323F588AFF000E
30030E610001020371FFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFFF054B6AFF
6D7339373631323937353432 31FFFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFF

Quarter-Watt, Microprocessor-controlled Satellite-linked Time-Depth Recorder.
Unit measures depth from 0 to 980 meters with a resolution of 4 meters
Software version 3.14a. Unit number: 97-612. ARGOS geolocation id = 5421
Unit identifier = ms97612975421. Unit started at 22:09:46 on 21/10/97
Time (GMT) is 03:22:10.24. Date (GMT) is 23 October 1997
Shallowest depth to be considered a "dive" = 8 meters
Deepest depth for accumulating surface-timelines (0=dry only) = 4 meters
SLTDR uses 1-sec / ¼-sec wakeups when shallower than 40 / 12 meters
Local time [0-23 hours] corresponding to 00h UT (GMT): 14
Transmission intervals (at-sea / on-land) = 00:39.00 / 01:24.00
SLTDR will use on-land interval after 10 consecutive dry transmissions
SLTDR will suspend transmissions after 4 hours "hauled-out".
"Haul-out" ends
after SLTDR is "wet" for 4 successive at-sea transmission intervals
Transmissions will be duty cycled with 1 day on and 0 days off
Daily allowance (1-message transmissions; unused xmits don't accumulate) = 250
STATUS will be transmitted every 20 messages.
Blocks of Time-Lines will be transmitted every 48 messages.
Hours when SLTDR transmits: 01-02,05-06,13-14,17-18
Upper limits of maximum-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
Upper limits of dive-duration histogram bins are:
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 25, 30, 40, ∞ minutes
Upper limits of time-at-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
**** Check these parameters carefully ****. Ready to deploy? y
Type D to archive depth readings, H to archive histograms: h

Unit is ready for deployment, disconnect cable and go for it...

3. Unit number: 97-613. ARGOS geolocation id = 5422 Unit identifier = ms97613975422.

Time (GMT) is 03:19:13.58.
SL-TDR> d
Date (GMT) is 23 October 1997
SL-TDR> v
Battery voltage under light load = 5.890 Volts.
SL-TDR> v
Battery voltage under light load = 5.890 Volts.
SL-TDR> a3
S.W. Resistance = 255, Depth (m) = 0
S.W. Resistance = 255, Depth (m) = 0
S.W. Resistance = 255, Depth (m) = 0
SL-TDR> o
Do you wish to allow any unused portion of your daily transmission allowance
to be added to the next day's allowance? [n]
Do you wish to be able to set the daily transmission allowance on a
month-by-month basis? [n]
Enter number (0/6/10/14) of depth histogram bins: [14]
Enter number (0/6/10/14) of duration histogram bins: [14]
Enter number (0/6/10/14) of time-at-depth histogram bins: [14]
How many histograms or timeline messages should be encoded into
each transmission (1/2) [1]
Will the instrument be deployed in an area where fresh and salt water may
exist in discrete layers? [n]
SL-TDR> e
It is strongly recommended that you log the following information to a disk
file so that you have a permanent copy of this setup. In PROCOMM you do this
by pressing the ALT-F1 key combination. You will then be prompted for a
filename, a suggested name is 97-613.SET
After you have entered a filename, press return to continue.
SLTDR version: 3.14a
5E020E140404000F01001FFD7E0A0100
00010100000101000000000000010100
00010100000000005024010050390000
0139372D363133FF000A0400000A0400
000A040000000100000010000000100
000A0A0301000100010002000000000
FA000000000000000000000000000000
00000000000000000000000040702003A
050A0F14191E23282D323F588AFF000E
020406080A0C0E101214191E28FF000E
050A0F14191E23282D323F588AFF000E
30030E610001020375FFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFF054B9FFF
6D733937363133393735343232FFFFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF

Quarter-Watt, Microprocessor-controlled Satellite-linked Time-Depth Recorder.
Unit measures depth from 0 to 980 meters with a resolution of 4 meters
Software version 3.14a. Unit number: 97-613. ARGOS geolocation id = 5422
Unit identifier = ms97613975422. Unit started at 22:06:04 on 21/10/97
Time (GMT) is 03:19:57.93. Date (GMT) is 23 October 1997
Shallowest depth to be considered a "dive" = 8 meters
Deepest depth for accumulating surface-timelines (0=dry only) = 4 meters
SLTDR uses 1-sec / ¼-sec wakeups when shallower than 40 / 12 meters
Local time [0-23 hours] corresponding to 00h UT (GMT): 14
Transmission intervals (at-sea / on-land) = 00:39.50 / 01:24.50
SLTDR will use on-land interval after 10 consecutive dry transmissions
SLTDR will suspend transmissions after 4 hours "hauled-out". "Haul-out" ends
after SLTDR is "wet" for 4 successive at-sea transmission intervals
Transmissions will be duty cycled with 1 day on and 0 days off
Daily allowance (1-message transmissions; unused xmits don't accumulate) = 250
STATUS will be transmitted every 20 messages.
Blocks of Time-Lines will be transmitted every 48 messages.
Hours when SLTDR transmits: 01-02,05-06,13-14,17-18
Upper limits of maximum-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
Upper limits of dive-duration histogram bins are:
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 25, 30, 40, ∞ minutes
Upper limits of time-at-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
**** Check these parameters carefully ****. Ready to deploy? y
Type D to archive depth readings, H to archive histograms: h

Unit is ready for deployment, disconnect cable and go for it...

4. Unit number: 97-591. ARGOS gelocation id = 5423 Unit identifier = ms97591975423

Time (GMT) is 04:52:17.62.
SL-TDR> d
Date (GMT) is 23 October 1997
SL-TDR> o
Do you wish to allow any unused portion of your daily transmission allowance
to be added to the next day's allowance? [n]
Do you wish to be able to set the daily transmission allowance on a
month-by-month basis? [n]
Enter number (0/6/10/14) of depth histogram bins: [14]
Enter number (0/6/10/14) of duration histogram bins: [14]
Enter number (0/6/10/14) of time-at-depth histogram bins: [14]
How many histograms or timeline messages should be encoded into
each transmission (1/2) [1]
Will the instrument be deployed in an area where fresh and salt water may
exist in discrete layers? [n]
SL-TDR> e
It is strongly recommended that you log the following information to a disk
file so that you have a permanent copy of this setup. In PROCOMM you do this
by pressing the ALT-F1 key combination. You will then be prompted for a
filename, a suggested name is 97-591.SET
After you have entered a filename, press return to continue.
SLTDR version: 3.14a
C0020E140404003C01001FFD7F0A0100
000101000001010000000000000010100
000001010000000000300100004500000
0139372D353931FF000A0400000A0400
000A040000000100000001000000100
000A0A0301000100010002000000000
F401000000000000000000000000000000
000000000000000000000000407020056
050A0F14191E23282D323F588AFF000E
020406080A0C0E101214191E28FF000E
050A0F14191E23282D323F588AFF000E
30030E610001020380FFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFFFF054BCCFF
6D73393735393139373534323 3FFFFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFF

Quarter-Watt, Microprocessor-controlled Satellite-linked Time-Depth Recorder.
Unit measures depth from 0 to 980 meters with a resolution of 4 meters
Software version 3.14a. Unit number: 97-591. ARGOS geolocation id = 5423
Unit identifier = ms97591975423. Unit started at 20:18:44 on 21/10/97
Time (GMT) is 04:52:27.60. Date (GMT) is 23 October 1997
Shallowest depth to be considered a "dive" = 8 meters
Deepest depth for accumulating surface-timelines (0=dry only) = 4 meters
SLTDR uses 1-sec / ¼-sec wakeups when shallower than 40 / 12 meters
Local time [0-23 hours] corresponding to 00h UT (GMT): 14
Transmission intervals (at-sea / on-land) = 00:45.00 / 01:30.00
SLTDR will use on-land interval after 10 consecutive dry transmissions
SLTDR will suspend transmissions after 4 hours "hauled-out".
"Haul-out" ends
after SLTDR is "wet" for 4 successive at-sea transmission intervals
Transmissions will be duty cycled with 1 day on and 0 days off
Daily allowance (1-message transmissions; unused xmits don't accumulate) = 500
STATUS will be transmitted every 20 messages.
Blocks of Time-Lines will be transmitted every 48 messages.
Hours when SLTDR transmits: 01-02,05-06,13-14,18-19
Upper limits of maximum-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
Upper limits of dive-duration histogram bins are:
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 25, 30, 40, ∞ minutes
Upper limits of time-at-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
**** Check these parameters carefully ****. Ready to deploy? y
Type D to archive depth readings, H to archive histograms: h

Unit is ready for deployment, disconnect cable and go for it...

5. Unit number: 97-592. ARGOS geolocation id = 5424, Unit identifier = ms97592975424.

SL-TDR> o
Do you wish to allow any unused portion of your daily transmission allowance
to be added to the next day's allowance? [n]
Do you wish to be able to set the daily transmission allowance on a
month-by-month basis? [n]
Enter number (0/6/10/14) of depth histogram bins: [14]
Enter number (0/6/10/14) of duration histogram bins: [14]
Enter number (0/6/10/14) of time-at-depth histogram bins: [14]
How many histograms or timeline messages should be encoded into
each transmission (1/2) [1]
Will the instrument be deployed in an area where fresh and salt water may
exist in discrete layers? [n]
SL-TDR> e
It is strongly recommended that you log the following information to a disk
file so that you have a permanent copy of this setup. In PROCOMM you do this
by pressing the ALT-F1 key combination. You will then be prompted for a
filename, a suggested name is 97-592.SET
After you have entered a filename, press return to continue.
SLTDR version: 3.14a
48020E140404003C01001FFD7F0A0100
00010100000101000000000000010100
00000101000000000031010000460000
0139372D353932FF000A0400000A0400
000A040000000100000001000000100
000A0A0301000100010020000000000
F401000000000000000000000000000000
00000000000000000000000407020086
050A0F14191E23282D323F588AFF000E
020406080A0C0E101214191E28FF000E
050A0F14191E2328323F588A8CFF000E
30030E610001020380FFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFF054C37FF
6D7339373539323937353432 34FFFFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFF

Quarter-Watt, Microprocessor-controlled Satellite-linked Time-Depth Recorder.
Unit measures depth from 0 to 980 meters with a resolution of 4 meters
Software version 3.14a. Unit number: 97-592. ARGOS geolocation id = 5424
Unit identifier = ms97592975424. Unit started at 20:55:58 on 21/10/97
Time (GMT) is 04:34:10.04. Date (GMT) is 23 October 1997
Shallowest depth to be considered a "dive" = 8 meters
Deepest depth for accumulating surface-timelines (0=dry only) = 4 meters
SLTDR uses 1-sec / ¼-sec wakeups when shallower than 40 / 12 meters
Local time [0-23 hours] corresponding to 00h UT (GMT): 14
Transmission intervals (at-sea / on-land) = 00:46.00 / 01:31.00
SLTDR will use on-land interval after 10 consecutive dry transmissions
SLTDR will suspend transmissions after 4 hours "hauled-out". "Haul-out" ends
after SLTDR is "wet" for 4 successive at-sea transmission intervals
Transmissions will be duty cycled with 1 day on and 0 days off
Daily allowance (1-message transmissions; unused xmits don't accumulate) = 500
STATUS will be transmitted every 20 messages.
Blocks of Time-Lines will be transmitted every 48 messages.
Hours when SLTDR transmits: 01-02,05-06,13-14,18-19
Upper limits of maximum-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
Upper limits of dive-duration histogram bins are:
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 25, 30, 40, ∞ minutes
Upper limits of time-at-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 200, 252, 352, 552, 560, ∞ meters
**** Check these parameters carefully ****. Ready to deploy? y
Type D to archive depth readings, H to archive histograms: h

Unit is ready for deployment, disconnect cable and go for it...

6. Unit number: 97-593. ARGOS geolocation id = 24098 Unit identifier = ms975939724098

Time (GMT) is 04:39:17.33.
SL-TDR> d
Date (GMT) is 23 October 1997
SL-TDR> v
Battery voltage under light load = 7.136 Volts.
SL-TDR> v
Battery voltage under light load = 7.136 Volts.
SL-TDR> a3
S.W. Resistance = 255, Depth (m) = 0
S.W. Resistance = 255, Depth (m) = 0
S.W. Resistance = 255, Depth (m) = -4
SL-TDR> o
Do you wish to allow any unused portion of your daily transmission allowance
to be added to the next day's allowance? [n]
Do you wish to be able to set the daily transmission allowance on a
month-by-month basis? [n]
Enter number (0/6/10/14) of depth histogram bins: [14]
Enter number (0/6/10/14) of duration histogram bins: [14]
Enter number (0/6/10/14) of time-at-depth histogram bins: [14]
How many histograms or timeline messages should be encoded into
each transmission (1/2) [1]
Will the instrument be deployed in an area where fresh and salt water may
exist in discrete layers? [n]
SL-TDR> e
It is strongly recommended that you log the following information to a disk
file so that you have a permanent copy of this setup. In PROCOMM you do this
by pressing the ALT-F1 key combination. You will then be prompted for a
filename, a suggested name is 97-593.SET
After you have entered a filename, press return to continue.
SLTDR version: 3.14a
32020E140404003C010020FD7D0A0100
000101000001010000000000000010100
000001010000000000320100004700000
0139372D353933FF000A0400000A0400
000A040000000100000001000000000100
000A0A03010001000100020000000000
F401000000000000000000000000000000
000000000000000000000000004070200F4
050A0F14191E23282D323F588AFF000E
020406080A0C0E101214191E28FF000E
050A0F14191E23282D323F588AFF000E
30030E61000102038BFFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFFFF0788A3FF
6D733937353933393732343039 38FFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF

Quarter-Watt, Microprocessor-controlled Satellite-linked Time-Depth Recorder.
Unit measures depth from 0 to 980 meters with a resolution of 4 meters
Software version 3.14a. Unit number: 97-593. ARGOS geolocation id = 24098
Unit identifier = ms975939724098. Unit started at 20:44:04 on 21/10/97
Time (GMT) is 04:39:56.62. Date (GMT) is 23 October 1997
Shallowest depth to be considered a "dive" = 8 meters
Deepest depth for accumulating surface-timelines (0=dry only) = 4 meters
SLTDR uses 1-sec / ¼-sec wakeups when shallower than 40 / 12 meters
Local time [0-23 hours] corresponding to 00h UT (GMT): 14
Transmission intervals (at-sea / on-land) = 00:47.00 / 01:32.00
SLTDR will use on-land interval after 10 consecutive dry transmissions
SLTDR will suspend transmissions after 4 hours "hauled-out".
"Haul-out" ends
after SLTDR is "wet" for 4 successive at-sea transmission intervals
Transmissions will be duty cycled with 1 day on and 0 days off
Daily allowance (1-message transmissions; unused xmits don't accumulate) = 500
STATUS will be transmitted every 20 messages.
Blocks of Time-Lines will be transmitted every 48 messages.
Hours when SLTDR transmits: 01-02,05-06,13-14,18-19
Upper limits of maximum-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
Upper limits of dive-duration histogram bins are:
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 25, 30, 40, ∞ minutes
Upper limits of time-at-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
**** Check these parameters carefully ****. Ready to deploy? y
Type D to archive depth readings, H to archive histograms: h

Unit is ready for deployment, disconnect cable and go for it...

7. Unit number: 97-642. ARGOS geolocation id = 24099 Unit identifier = ms976429724099.

Time (GMT) is 04:21:32.60.
SL-TDR> d
Date (GMT) is 23 October 1997
SL-TDR> v
Battery voltage under light load = 7.130 Volts.
SL-TDR> v
Battery voltage under light load = 7.099 Volts.
SL-TDR> a3
S.W. Resistance = 255, Depth (m) = 0
S.W. Resistance = 255, Depth (m) = 0
S.W. Resistance = 255, Depth (m) = 0
SL-TDR> o
Do you wish to allow any unused portion of your daily transmission allowance
to be added to the next day's allowance? [n]
Do you wish to be able to set the daily transmission allowance on a
month-by-month basis? [n]
Enter number (0/6/10/14) of depth histogram bins: [14]
Enter number (0/6/10/14) of duration histogram bins: [14]
Enter number (0/6/10/14) of time-at-depth histogram bins: [14]
How many histograms or timeline messages should be encoded into
each transmission (1/2) [1]
Will the instrument be deployed in an area where fresh and salt water may
exist in discrete layers? [n]
SL-TDR> e
It is strongly recommended that you log the following information to a disk
file so that you have a permanent copy of this setup. In PROCOMM you do this
by pressing the ALT-F1 key combination. You will then be prompted for a
filename, a suggested name is 97-642.SET
After you have entered a filename, press return to continue.
SLTDR version: 3.14a
E4020E140404003C01001FFD810A0100
00010100000101000000000000010100
00000101000000000033010000480000
0139372D363432FF000A0400000A0400
000A040000000100000010000000100
000A0A0301000100010002000000000
F401000000000000000000000000000
00000000000000000000000004070200B6
050A0F14191E23282D323F588AFF000E
020406080A0C0E101214191E28FF000E
050A0F14191E23282D323F588AFF000E
30030E610001020380FFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFFF0788F0FF
6D733937363432393732343039 39FFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFF

[redacted]Quarter-Watt, Microprocessor-controlled Satellite-linked Time-Depth Recorder.
Unit measures depth from 0 to 980 meters with a resolution of 4 meters
Software version 3.14a. Unit number: 97-642. ARGOS geolocation id = 24099
Unit identifier = ms976429724099. Unit started at 20:32:49 on 21/10/97
Time (GMT) is 04:22:21.61. Date (GMT) is 23 October 1997
Shallowest depth to be considered a "dive" = 8 meters
Deepest depth for accumulating surface-timelines (0=dry only) = 4 meters
SLTDR uses 1-sec / ¼-sec wakeups when shallower than 40 / 12 meters
Local time [0-23 hours] corresponding to 00h UT (GMT): 14
Transmission intervals (at-sea / on-land) = 00:48.00 / 01:33.00
SLTDR will use on-land interval after 10 consecutive dry transmissions
SLTDR will suspend transmissions after 4 hours "hauled-out". "Haul-out" ends
after SLTDR is "wet" for 4 successive at-sea transmission intervals
Transmissions will be duty cycled with 1 day on and 0 days off
Daily allowance (1-message transmissions; unused xmits don't accumulate) = 500
STATUS will be transmitted every 20 messages.
Blocks of Time-Lines will be transmitted every 48 messages.
Hours when SLTDR transmits: 01-02,05-06,13-14,18-19
Upper limits of maximum-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
Upper limits of dive-duration histogram bins are:
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 25, 30, 40, ∞ minutes
Upper limits of time-at-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
**** Check these parameters carefully ****. Ready to deploy? y
Type D to archive depth readings, H to archive histograms: h

Unit is ready for deployment, disconnect cable and go for it...

8. Unit number: 97-595. ARGOS geolocation id = 24100 Unit identifier = ms975959724100

Time (GMT) is 04:28:26.01.
SL-TDR> d
Date (GMT) is 23 October 1997
SL-TDR> v
Battery voltage under light load = 7.168 Volts.
SL-TDR> v
Battery voltage under light load = 7.136 Volts.
SL-TDR> a3
S.W. Resistance = 255, Depth (m) = 0
S.W. Resistance = 255, Depth (m) = 0
S.W. Resistance = 255, Depth (m) = 0
SL-TDR> o
Do you wish to allow any unused portion of your daily transmission allowance
to be added to the next day's allowance? [n]
Do you wish to be able to set the daily transmission allowance on a
month-by-month basis? [n]
Enter number (0/6/10/14) of depth histogram bins: [14]
Enter number (0/6/10/14) of duration histogram bins: [14]
Enter number (0/6/10/14) of time-at-depth histogram bins: [14]
How many histograms or timeline messages should be encoded into
each transmission (1/2) [1]
Will the instrument be deployed in an area where fresh and salt water may
exist in discrete layers? [n]
SL-TDR> e
It is strongly recommended that you log the following information to a disk
file so that you have a permanent copy of this setup. In PROCOMM you do this
by pressing the ALT-F1 key combination. You will then be prompted for a
filename, a suggested name is 97-595.SET
After you have entered a filename, press return to continue.
SLTDR version: 3.14a
32020E140404003C010020FD7D0A0100
000101000001010000000000010100
000001010000000000340100004900000
0139372D353935FF000A0400000A0400
000A040000000100000001000000100
000A0A0301000100010020000000000
F401000000000000000000000000000000
000000000000000000000000004070200A5
050A0F14191E23282D323F588AFF000E
020406080A0C0E101214191E28FF000E
050A0F14191E23282D323F588AFF000E
30030E61000102036AFFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFF07891AFF
6D7339373539353937323431303 0FFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF

Quarter-Watt, Microprocessor-controlled Satellite-linked Time-Depth Recorder.
Unit measures depth from 0 to 980 meters with a resolution of 4 meters
Software version 3.14a. Unit number: 97-595. ARGOS geolocation id = 24100
Unit identifier = ms975959724100. Unit started at 20:27:14 on 21/10/97
Time (GMT) is 04:28:57.17. Date (GMT) is 23 October 1997
Shallowest depth to be considered a "dive" = 8 meters
Deepest depth for accumulating surface-timelines (0=dry only) = 4 meters
SLTDR uses 1-sec / ¼-sec wakeups when shallower than 40 / 12 meters
Local time [0-23 hours] corresponding to 00h UT (GMT): 14
Transmission intervals (at-sea / on-land) = 00:49.00 / 01:34.00
SLTDR will use on-land interval after 10 consecutive dry transmissions
SLTDR will suspend transmissions after 4 hours "hauled-out".
"Haul-out" ends
after SLTDR is "wet" for 4 successive at-sea transmission intervals
Transmissions will be duty cycled with 1 day on and 0 days off
Daily allowance (1-message transmissions; unused xmits don't accumulate) = 500
STATUS will be transmitted every 20 messages.
Blocks of Time-Lines will be transmitted every 48 messages.
Hours when SLTDR transmits: 01-02,05-06,13-14,18-19
Upper limits of maximum-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
Upper limits of dive-duration histogram bins are:
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 25, 30, 40, ∞ minutes
Upper limits of time-at-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
**** Check these parameters carefully ****. Ready to deploy? y
Type D to archive depth readings, H to archive histograms: h

Unit is ready for deployment, disconnect cable and go for it...

9. Unit number: 97-596. ARGOS geolocation id = 24101 Unit identifier = ms975969724101

Time (GMT) is 03:59:29.50.
SL-TDR> d
Date (GMT) is 23 October 1997
SL-TDR> v
Battery voltage under light load = 7.099 Volts.
SL-TDR> v
Battery voltage under light load = 7.068 Volts.
SL-TDR> v
Battery voltage under light load = 7.099 Volts.

SL-TDR> o
Do you wish to allow any unused portion of your daily transmission allowance
to be added to the next day's allowance? [n]
Do you wish to be able to set the daily transmission allowance on a
month-by-month basis? [n]
Enter number (0/6/10/14) of depth histogram bins: [14]
Enter number (0/6/10/14) of duration histogram bins: [14]
Enter number (0/6/10/14) of time-at-depth histogram bins: [14]
How many histograms or timeline messages should be encoded into
each transmission (1/2) [1]
Will the instrument be deployed in an area where fresh and salt water may
exist in discrete layers? [n]
SL-TDR> o
Do you wish to allow any unused portion of your daily transmission allowance
to be added to the next day's allowance? [n]
Do you wish to be able to set the daily transmission allowance on a
month-by-month basis? [n]
Enter number (0/6/10/14) of depth histogram bins: [14]
Enter number (0/6/10/14) of duration histogram bins: [14]
Enter number (0/6/10/14) of time-at-depth histogram bins: [14]
How many histograms or timeline messages should be encoded into
each transmission (1/2) [1]
Will the instrument be deployed in an area where fresh and salt water may
exist in discrete layers? [n]
SL-TDR>
SL-TDR> e
It is strongly recommended that you log the following information to a disk
file so that you have a permanent copy of this setup. In PROCOMM you do this
by pressing the ALT-F1 key combination. You will then be prompted for a
filename, a suggested name is 97-596.SET
After you have entered a filename, press return to continue.
SLTDR version: 3.14a
76020E140404003C01001FFD800A0100
00010100000101000000000000010100
00000101000000000035010000500000
0139372D353936FF000A0400000A0400
000A040000000100000010000000100
000A0A0301000100010002000000000
F401000000000000000000000000000
00000000000000000000000407020068
050A0F14191E23282D323F588AFF000E
020406080A0C0E101214191E28FF000E
050A0F14191E23282D323F588AFF000E
30030E61000102036BFFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFF078949FF
6D73393735393639373234313031FFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFF

[redacted]Quarter-Watt, Microprocessor-controlled Satellite-linked Time-Depth Recorder.
Unit measures depth from 0 to 980 meters with a resolution of 4 meters
Software version 3.14a. Unit number: 97-596. ARGOS geolocation id = 24101
Unit identifier = ms975969724101. Unit started at 03:59:47 on 23/10/97
Time (GMT) is 03:59:57.98. Date (GMT) is 23 October 1997
Shallowest depth to be considered a "dive" = 8 meters
Deepest depth for accumulating surface-timelines (0=dry only) = 4 meters
SLTDR uses 1-sec / ¼-sec wakeups when shallower than 40 / 12 meters
Local time [0-23 hours] corresponding to 00h UT (GMT): 14
Transmission intervals (at-sea / on-land) = 00:50.00 / 01:35.00
SLTDR will use on-land interval after 10 consecutive dry transmissions
SLTDR will suspend transmissions after 4 hours "hauled-out".
"Haul-out" ends
after SLTDR is "wet" for 4 successive at-sea transmission intervals
Transmissions will be duty cycled with 1 day on and 0 days off
Daily allowance (1-message transmissions; unused xmits don't accumulate) = 500
STATUS will be transmitted every 20 messages.
Blocks of Time-Lines will be transmitted every 48 messages.
Hours when SLTDR transmits: 01-02,05-06,13-14,18-19
Upper limits of maximum-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
Upper limits of dive-duration histogram bins are:
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 25, 30, 40, ∞ minutes
Upper limits of time-at-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
**** Check these parameters carefully ****. Ready to deploy? y
Type D to archive depth readings, H to archive histograms: h

Unit is ready for deployment, disconnect cable and go for it...

10. Unit number: 97-597. ARGOS geolocation id = 24102 Unit identifier = ms975979724102.

Do you wish to allow any unused portion of your daily transmission allowance
to be added to the next day's allowance? [n]
Do you wish to be able to set the daily transmission allowance on a
month-by-month basis? [n]
Enter number (0/6/10/14) of depth histogram bins: [14]
Enter number (0/6/10/14) of duration histogram bins: [14]
Enter number (0/6/10/14) of time-at-depth histogram bins: [14]
How many histograms or timeline messages should be encoded into
each transmission (1/2) [1]
Will the instrument be deployed in an area where fresh and salt water may
exist in discrete layers? [n]
SL-TDR> t
Time (GMT) is 04:26:22.97.
SL-TDR> d
Date (GMT) is 23 October 1997
SL-TDR> v
Battery voltage under light load = 7.130 Volts.
SL-TDR> v
Battery voltage under light load = 7.099 Volts.
SL-TDR> v
Battery voltage under light load = 7.099 Volts.
SL-TDR> a3
S.W. Resistance = 255, Depth (m) = 0
S.W. Resistance = 255, Depth (m) = 0
S.W. Resistance = 255, Depth (m) = 0
S.W. Resistance = 255, Depth (m) = 0
SL-TDR> e
It is strongly recommended that you log the following information to a disk
file so that you have a permanent copy of this setup. In PROCOMM you do this
by pressing the ALT-F1 key combination. You will then be prompted for a
filename, a suggested name is 97-597.SET
After you have entered a filename, press return to continue.
SLTDR version: 3.14a
FE020E140404003C01001FFD800A0100
00010100000101000000000000010100
00000101000000000029010000440000
0139372D353937FF000A0400000A0400
000A040000000100000001000000100
000A0A0301000100010002000000000
F401000000000000000000000000000
00000000000000000000000004070200F5
050A0F14191E23282D323F588AFF000E
020406080A0C0E101214191E28FF000E
050A0F14191E23282D323F588AFF000E
30030E610001020380FFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFF0789BCFF
6D7339373539373937373234313032FFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF

Quarter-Watt, Microprocessor-controlled Satellite-linked Time-Depth Recorder.
Unit measures depth from 0 to 980 meters with a resolution of 4 meters
Software version 3.14a. Unit number: 97-597. ARGOS geolocation id = 24102
Unit identifier = ms975979724102. Unit started at 21:13:27 on 21/10/97
Time (GMT) is 04:26:36.24. Date (GMT) is 23 October 1997
Shallowest depth to be considered a "dive" = 8 meters
Deepest depth for accumulating surface-timelines (0=dry only) = 4 meters
SLTDR uses 1-sec / ¼-sec wakeups when shallower than 40 / 12 meters
Local time [0-23 hours] corresponding to 00h UT (GMT): 14
Transmission intervals (at-sea / on-land) = 00:44.00 / 01:29.00
SLTDR will use on-land interval after 10 consecutive dry transmissions
SLTDR will suspend transmissions after 4 hours "hauled-out". "Haul-out" ends
after SLTDR is "wet" for 4 successive at-sea transmission intervals
Transmissions will be duty cycled with 1 day on and 0 days off
Daily allowance (1-message transmissions; unused xmits don't accumulate) = 500
STATUS will be transmitted every 20 messages.
Blocks of Time-Lines will be transmitted every 48 messages.
Hours when SLTDR transmits: 01-02,05-06,13-14,18-19
Upper limits of maximum-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
Upper limits of dive-duration histogram bins are:
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 25, 30, 40, ∞ minutes
Upper limits of time-at-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
**** Check these parameters carefully ****. Ready to deploy? y
Type D to archive depth readings, H to archive histograms: h

Unit is ready for deployment, disconnect cable and go for it...

11. Unit number: 97-598. ARGOS geolocation id = 24103 Unit identifier = ms975989724103.

Time (GMT) is 04:59:43.15.
SL-TDR> d
Date (GMT) is 23 October 1997
SL-TDR> v
Battery voltage under light load = 7.068 Volts.
SL-TDR> v
Battery voltage under light load = 7.068 Volts.
SL-TDR> v
Battery voltage under light load = 7.068 Volts.
SL-TDR> a3
S.W. Resistance = 255, Depth (m) = 0
S.W. Resistance = 255, Depth (m) = 0
S.W. Resistance = 255, Depth (m) = 0
SL-TDR> o
Do you wish to allow any unused portion of your daily transmission allowance
to be added to the next day's allowance? [n]
Do you wish to be able to set the daily transmission allowance on a
month-by-month basis? [n]
Enter number (0/6/10/14) of depth histogram bins: [14]
Enter number (0/6/10/14) of duration histogram bins: [14]
Enter number (0/6/10/14) of time-at-depth histogram bins: [14]
How many histograms or timeline messages should be encoded into
each transmission (1/2) [1]
Will the instrument be deployed in an area where fresh and salt water may
exist in discrete layers? [n]
SL-TDR> e
It is strongly recommended that you log the following information to a disk
file so that you have a permanent copy of this setup. In PROCOMM you do this
by pressing the ALT-F1 key combination. You will then be prompted for a
filename, a suggested name is 97-598.SET
After you have entered a filename, press return to continue.
SLTDR version: 3.14a
62020E140404003C01001FFD800A0100
00010100000101000000000000010100
00000101000000000028010000430000
0139372D353938FF000A0400000A0400
000A040000000100000001000000100
000A0A0301000100010020000000000
F401000000000000000000000000000000
00000000000000000000000004070200C6
050A0F14191E23282D323F588AFF000E
020406080A0C0E101214191E28FF000E
050A0F14191E23282D323F588AFF000E
30030E61000102037BFFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFFF0789EFFF
6D7339373539383937323431303 3FFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF

Quarter-Watt, Microprocessor-controlled Satellite-linked Time-Depth Recorder.
Unit measures depth from 0 to 980 meters with a resolution of 4 meters
Software version 3.14a. Unit number: 97-598. ARGOS geolocation id = 24103 Unit identifier = ms975989724103. Unit started at 20:13:46 on 21/10/97
Time (GMT) is 05:11:04.22. Date (GMT) is 23 October 1997
Shallowest depth to be considered a "dive" = 8 meters
Deepest depth for accumulating surface-timelines (0=dry only) = 4 meters
SLTDR uses 1-sec / ¼-sec wakeups when shallower than 40 / 12 meters
Local time [0-23 hours] corresponding to 00h UT (GMT): 14
Transmission intervals (at-sea / on-land) = 00:43.00 / 01:28.00
SLTDR will use on-land interval after 10 consecutive dry transmissions
SLTDR will suspend transmissions after 4 hours "hauled-out".
"Haul-out" ends
after SLTDR is "wet" for 4 successive at-sea transmission intervals
Transmissions will be duty cycled with 1 day on and 0 days off
Daily allowance (1-message transmissions; unused xmits don't accumulate) = 500
STATUS will be transmitted every 20 messages.
Blocks of Time-Lines will be transmitted every 48 messages.
Hours when SLTDR transmits: 01-02,05-06,13-14,18-19
Upper limits of maximum-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
Upper limits of dive-duration histogram bins are:
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 25, 30, 40, ∞ minutes
Upper limits of time-at-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
**** Check these parameters carefully ****. Ready to deploy? y
Type D to archive depth readings, H to archive histograms: h

Unit is ready for deployment, disconnect cable and go for it...

12. Unit number: 97-599. ARGOS geolocation id = 24104, Unit identifier = ms975999724104.

Time (GMT) is 04:50:15.48.
SL-TDR> d
Date (GMT) is 23 October 1997
SL-TDR> o
Do you wish to allow any unused portion of your daily transmission allowance
to be added to the next day's allowance? [n]
Do you wish to be able to set the daily transmission allowance on a
month-by-month basis? [n]
Enter number (0/6/10/14) of depth histogram bins: [14]
Enter number (0/6/10/14) of duration histogram bins: [14]
Enter number (0/6/10/14) of time-at-depth histogram bins: [14]
How many histograms or timeline messages should be encoded into
each transmission (1/2) [1]
Will the instrument be deployed in an area where fresh and salt water may
exist in discrete layers? [n]
SL-TDR> e
It is strongly recommended that you log the following information to a disk
file so that you have a permanent copy of this setup. In PROCOMM you do this
by pressing the ALT-F1 key combination. You will then be prompted for a
filename, a suggested name is 97-599.SET
After you have entered a filename, press return to continue.
SLTDR version: 3.14a
F2020E140404003C01001FFD800A0100
000101000001010000000000000010100
000001010000000000027010000420000
0139372D353939FF000A0400000A0400
000A040000000100000001000000100
000A0A0301000100010002000000000
F401000000000000000000000000000
000000000000000000000000407020073
050A0F14191E23282D323F588AFF000E
020406080A0C0E101214191E28FF000E
050A0F14191E23282D323F588AFF000E
30030E610001020380FFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFF078A3BFF
6D7339373539393937323431303 4FFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFF

Quarter-Watt, Microprocessor-controlled Satellite-linked Time-Depth Recorder.
Unit measures depth from 0 to 980 meters with a resolution of 4 meters
Software version 3.14a. Unit number: 97-599. ARGOS geolocation id = 24104
Unit identifier = ms975999724104. Unit started at 20:29:55 on 21/10/97
Time (GMT) is 04:50:50.57. Date (GMT) is 23 October 1997
Shallowest depth to be considered a "dive" = 8 meters
Deepest depth for accumulating surface-timelines (0=dry only) = 4 meters
SLTDR uses 1-sec / ¼-sec wakeups when shallower than 40 / 12 meters
Local time [0-23 hours] corresponding to 00h UT (GMT): 14
Transmission intervals (at-sea / on-land) = 00:42.00 / 01:27.00
SLTDR will use on-land interval after 10 consecutive dry transmissions
SLTDR will suspend transmissions after 4 hours "hauled-out". "Haul-out" ends
after SLTDR is "wet" for 4 successive at-sea transmission intervals
Transmissions will be duty cycled with 1 day on and 0 days off
Daily allowance (1-message transmissions; unused xmits don't accumulate) = 500
STATUS will be transmitted every 20 messages.
Blocks of Time-Lines will be transmitted every 48 messages.
Hours when SLTDR transmits: 01-02,05-06,13-14,18-19
Upper limits of maximum-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
Upper limits of dive-duration histogram bins are:
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 25, 30, 40, ∞ minutes
Upper limits of time-at-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
**** Check these parameters carefully ****. Ready to deploy? y
Type D to archive depth readings, H to archive histograms: h

Unit is ready for deployment, disconnect cable and go for it...

13. Unit number: 97-600. ARGOS geolocation id = 24105 Unit identifier = ms976009724105.

Time (GMT) is 04:43:37.00.
SL-TDR> d
Date (GMT) is 23 October 1997
SL-TDR> v
Battery voltage under light load = 7.130 Volts.
SL-TDR> v
Battery voltage under light load = 7.130 Volts.
SL-TDR> a3
S.W. Resistance = 255, Depth (m) = 4
S.W. Resistance = 255, Depth (m) = 0
S.W. Resistance = 255, Depth (m) = 0
SL-TDR> o
Do you wish to allow any unused portion of your daily transmission allowance
to be added to the next day's allowance? [n]
Do you wish to be able to set the daily transmission allowance on a
month-by-month basis? [n]
Enter number (0/6/10/14) of depth histogram bins: [14]
Enter number (0/6/10/14) of duration histogram bins: [14]
Enter number (0/6/10/14) of time-at-depth histogram bins: [14]
How many histograms or timeline messages should be encoded into
each transmission (1/2) [1]
Will the instrument be deployed in an area where fresh and salt water may
exist in discrete layers? [n]
SL-TDR> e
It is strongly recommended that you log the following information to a disk
file so that you have a permanent copy of this setup. In PROCOMM you do this
by pressing the ALT-F1 key combination. You will then be prompted for a
filename, a suggested name is 97-600.SET
After you have entered a filename, press return to continue.
SLTDR version: 3.14a
B8020E140404003C01001FFD800A0100
00010100000101000000000000010100
00000101000000000026010000410000
0139372D363030FF000A0400000A0400
000A040000000100000001000000100
000A0A0301000100010020000000000
F401000000000000000000000000000
00000000000000000000000407020049
050A0F14191E23282D323F588AFF000E
020406080A0C0E101214191E28FF000E
050A0F14191E23282D323F588AFF000E
30030E6100010203A0FFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFFF078A68FF
6D733937363030393732343130 35FFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF

Quarter-Watt, Microprocessor-controlled Satellite-linked Time-Depth Recorder.
Unit measures depth from 0 to 980 meters with a resolution of 4 meters
Software version 3.14a. Unit number: 97-600. ARGOS geolocation id = 24105
Unit identifier = ms976009724105. Unit started at 20:37:34 on 21/10/97
Time (GMT) is 04:43:50.43. Date (GMT) is 23 October 1997
Shallowest depth to be considered a "dive" = 8 meters
Deepest depth for accumulating surface-timelines (0=dry only) = 4 meters
SLTDR uses 1-sec / ¼-sec wakeups when shallower than 40 / 12 meters
Local time [0-23 hours] corresponding to 00h UT (GMT): 14
Transmission intervals (at-sea / on-land) = 00:41.00 / 01:26.00
SLTDR will use on-land interval after 10 consecutive dry transmissions
SLTDR will suspend transmissions after 4 hours "hauled-out".
"Haul-out" ends
after SLTDR is "wet" for 4 successive at-sea transmission intervals
Transmissions will be duty cycled with 1 day on and 0 days off
Daily allowance (1-message transmissions; unused xmits don't accumulate) = 500
STATUS will be transmitted every 20 messages.
Blocks of Time-Lines will be transmitted every 48 messages.
Hours when SLTDR transmits: 01-02,05-06,13-14,18-19
Upper limits of maximum-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
Upper limits of dive-duration histogram bins are:
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 25, 30, 40, ∞ minutes
Upper limits of time-at-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
**** Check these parameters carefully ****. Ready to deploy? y
Type D to archive depth readings, H to archive histograms: h

Unit is ready for deployment, disconnect cable and go for it...

14. Unit number: 97-601. ARGOS geolocation id = 24106 Unit identifier = ms976019724106.

Time (GMT) is 03:56:12.90.
SL-TDR> d
Date (GMT) is 23 October 1997
SL-TDR> v
Battery voltage under light load = 7.130 Volts.
SL-TDR> v
Battery voltage under light load = 7.099 Volts.
SL-TDR> a3
S.W. Resistance = 255, Depth (m) = 0
S.W. Resistance = 255, Depth (m) = 0
S.W. Resistance = 255, Depth (m) = 0
SL-TDR> o
Do you wish to allow any unused portion of your daily transmission allowance
to be added to the next day's allowance? [n]
Do you wish to be able to set the daily transmission allowance on a
month-by-month basis? [n]
Enter number (0/6/10/14) of depth histogram bins: [14]
Enter number (0/6/10/14) of duration histogram bins: [14]
Enter number (0/6/10/14) of time-at-depth histogram bins: [14]
How many histograms or timeline messages should be encoded into
each transmission (1/2) [1]
Will the instrument be deployed in an area where fresh and salt water may
exist in discrete layers? [n]
SL-TDR> e
It is strongly recommended that you log the following information to a disk
file so that you have a permanent copy of this setup. In PROCOMM you do this
by pressing the ALT-F1 key combination. You will then be prompted for a
filename, a suggested name is 97-601.SET
After you have entered a filename, press return to continue.
SLTDR version: 3.14a
16020E140404003C01001FFD800A0100
00010100000101000000000000010100
00000101000000000025010000400000
0139372D363031FF000A0400000A0400
000A040000000100000001000000100
000A0A0301000100010002000000000
F401000000000000000000000000000
00000000000000000000000407020030
050A0F14191E23282D323F588AFF000E
020406080A0C0E101214191E28FF000E
050A0F14191E23282D323F588AFF000E
30030E610001020383FFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFF078A9DFF
6D7339373630313937323431303 6FFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF

Quarter-Watt, Microprocessor-controlled Satellite-linked Time-Depth Recorder.
Unit measures depth from 0 to 980 meters with a resolution of 4 meters
Software version 3.14a.
Unit started at 20:25:21 on 21/10/97
Time (GMT) is 03:56:36.45. Date (GMT) is 23 October 1997
Shallowest depth to be considered a "dive" = 8 meters
Deepest depth for accumulating surface-timelines (0=dry only) = 4 meters
SLTDR uses 1-sec / ¼-sec wakeups when shallower than 40 / 12 meters
Local time [0-23 hours] corresponding to 00h UT (GMT): 14
Transmission intervals (at-sea / on-land) = 00:40.00 / 01:25.00
SLTDR will use on-land interval after 10 consecutive dry transmissions
SLTDR will suspend transmissions after 4 hours "hauled-out".
"Haul-out" ends
after SLTDR is "wet" for 4 successive at-sea transmission intervals
Transmissions will be duty cycled with 1 day on and 0 days off
Daily allowance (1-message transmissions; unused xmits don't accumulate) = 500
STATUS will be transmitted every 20 messages.
Blocks of Time-Lines will be transmitted every 48 messages.
Hours when SLTDR transmits: 01-02,05-06,13-14,18-19
Upper limits of maximum-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
Upper limits of dive-duration histogram bins are:
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 25, 30, 40, ∞ minutes
Upper limits of time-at-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
**** Check these parameters carefully ****. Ready to deploy? y
Type D to archive depth readings, H to archive histograms: h

Unit is ready for deployment, disconnect cable and go for it...

15. Unit number: 97-602. ARGOS geolocation id = 24107 Unit identifier = ms976029724107.

Time (GMT) is 04:07:06.73.
SL-TDR> d
Date (GMT) is 23 October 1997
SL-TDR> v
Battery voltage under light load = 6.975 Volts.
SL-TDR> v
Battery voltage under light load = 6.975 Volts.
SL-TDR> v
Battery voltage under light load = 6.975 Volts.
SL-TDR> a3
S.W. Resistance = 255, Depth (m) = 0
S.W. Resistance = 255, Depth (m) = 0
S.W. Resistance = 255, Depth (m) = 0
SL-TDR> o
Do you wish to allow any unused portion of your daily transmission allowance
to be added to the next day's allowance? [n]
Do you wish to be able to set the daily transmission allowance on amonth-by-month basis? [n]
nter number (0/6/10/14) of depth histogram bins: [14]
Enter number (0/6/10/14) of duration histogram bins: [14]
Enter number (0/6/10/14) of time-at-depth histogram bins: [14]
How many histograms or timeline messages should be encoded into
each transmission (1/2) [1]
Will the instrument be deployed in an area where fresh and salt water may
exist in discrete layers? [n]
SL-TDR> e
It is strongly recommended that you log the following information to a disk
file so that you have a permanent copy of this setup. In PROCOMM you do this
by pressing the ALT-F1 key combination. You will then be prompted for a
filename, a suggested name is 97-602.SET
After you have entered a filename, press return to continue.
SLTDR version: 3.14a
D6020E140404003C01001FFD7F0A0100
00010100000101000000000000010100
00000101000000005031010050460000
0139372D363032FF000A0400000A0400
000A040000000100000010000000100
000A0A0301000100010002000000000
F401000000000000000000000000000000
00000000000000000000000407020045
050A0F14191E23282D323F588AFF000E
020406080A0C0E101214191E28FF000E
050A0F14191E23282D323F588AFF000E
30030E610001020389FFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFF078ACEFF
6D733937363032393732343137FFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF

Quarter-Watt, Microprocessor-controlled Satellite-linked Time-Depth Recorder.
Unit measures depth from 0 to 980 meters with a resolution of 4 meters
Software version 3.14a. Unit number: 97-602. ARGOS geolocation id = 24107
Unit identifier = ms976029724107. Unit started at 20:36:30 on 21/10/97
Time (GMT) is 04:07:20.80. Date (GMT) is 23 October 1997
Shallowest depth to be considered a "dive" = 8 meters
Deepest depth for accumulating surface-timelines (0=dry only) = 4 meters
SLTDR uses 1-sec / ¼-sec wakeups when shallower than 40 / 12 meters
Local time [0-23 hours] corresponding to 00h UT (GMT): 14
Transmission intervals (at-sea / on-land) = 00:46.50 / 01:31.50
SLTDR will use on-land interval after 10 consecutive dry transmissions
SLTDR will suspend transmissions after 4 hours "hauled-out". "Haul-out" ends
after SLTDR is "wet" for 4 successive at-sea transmission intervals
Transmissions will be duty cycled with 1 day on and 0 days off
Daily allowance (1-message transmissions; unused xmits don't accumulate) = 500
STATUS will be transmitted every 20 messages.
Blocks of Time-Lines will be transmitted every 48 messages.
Hours when SLTDR transmits: 01-02,05-06,13-14,18-19
Upper limits of maximum-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
Upper limits of dive-duration histogram bins are:
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 25, 30, 40, ∞ minutes
Upper limits of time-at-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
**** Check these parameters carefully ****. Ready to deploy? y
Type D to archive depth readings, H to archive histograms: h

Unit is ready for deployment, disconnect cable and go for it...

16. Unit number: 97-603. ARGOS geolocation id = 24108 Unit identifier = ms976039724108

Time (GMT) is 04:01:51.60.
SL-TDR> d
Date (GMT) is 23 October 1997
SL-TDR> o
Do you wish to allow any unused portion of your daily transmission allowance
to be added to the next day's allowance? [n]
Do you wish to be able to set the daily transmission allowance on a
month-by-month basis? [n]
Enter number (0/6/10/14) of depth histogram bins: [14]
Enter number (0/6/10/14) of duration histogram bins: [14]
Enter number (0/6/10/14) of time-at-depth histogram bins: [14]
How many histograms or timeline messages should be encoded into
each transmission (1/2) [1]
Will the instrument be deployed in an area where fresh and salt water may
exist in discrete layers? [n]
SL-TDR> e
It is strongly recommended that you log the following information to a disk
file so that you have a permanent copy of this setup. In PROCOMM you do this
by pressing the ALT-F1 key combination. You will then be prompted for a
filename, a suggested name is 97-603.SET
After you have entered a filename, press return to continue.
SLTDR version: 3.14a
16020E140404003C01001FFD7E0A0100
000101000001010000000000010100
000001010000000050320100054700 00
0139372D363033FF000A0400000A0400
000A040000000100000010000000100
000A0A0301000100010002000000000 0
F401000000000000000000000000000 0
000000000000000000000000040702002E
050A0F14191E23282D323F588AFF000E
020406080A0C0E101214191E28FF000E
050A0F14191E23282D323F588AFF000E
30030E610001020390FFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFFF078B24FF
6D7339373630333937323431303 8FFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFF

Quarter-Watt, Microprocessor-controlled Satellite-linked Time-Depth Recorder.
Unit measures depth from 0 to 980 meters with a resolution of 4 meters
Software version 3.14a. Unit number: 97-603. ARGOS geolocation id = 24108
Unit identifier = ms976039724108. Unit started at 21:19:24 on 21/10/97
Time (GMT) is 04:02:18.03. Date (GMT) is 23 October 1997
Shallowest depth to be considered a "dive" = 8 meters
Deepest depth for accumulating surface-timelines (0=dry only) = 4 meters
SLTDR uses 1-sec / ¼-sec wakeups when shallower than 40 / 12 meters
Local time [0-23 hours] corresponding to 00h UT (GMT): 14
Transmission intervals (at-sea / on-land) = 00:47.05 / 01:32.50
SLTDR will use on-land interval after 10 consecutive dry transmissions
SLTDR will suspend transmissions after 4 hours "hauled-out".
"Haul-out" ends
after SLTDR is "wet" for 4 successive at-sea transmission intervals
Transmissions will be duty cycled with 1 day on and 0 days off
Daily allowance (1-message transmissions; unused xmits don't accumulate) = 500
STATUS will be transmitted every 20 messages.
Blocks of Time-Lines will be transmitted every 48 messages.
Hours when SLTDR transmits: 01-02,05-06,13-14,18-19
Upper limits of maximum-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
Upper limits of dive-duration histogram bins are:
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 25, 30, 40, ∞ minutes
Upper limits of time-at-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
**** Check these parameters carefully ****. Ready to deploy? y
Type D to archive depth readings, H to archive histograms: h

Unit is ready for deployment, disconnect cable and go for it...

17. Unit number: 97-605. ARGOS geolocation id = 24110 Unit identifier = ms976059724110.

Time (GMT) is 03:45:21.14.
SL-TDR> d
Date (GMT) is 23 October 1997
SL-TDR> v
Battery voltage under light load = 7.006 Volts.
SL-TDR> v
Battery voltage under light load = 6.975 Volts.
SL-TDR> v
Battery voltage under light load = 6.975 Volts.
SL-TDR> a3
S.W. Resistance = 255, Depth (m) = 4
S.W. Resistance = 255, Depth (m) = 4
S.W. Resistance = 255, Depth (m) = 4
SL-TDR> t
Time (GMT) is 03:46:59.46.
SL-TDR> d
Date (GMT) is 23 October 1997
SL-TDR> v
Battery voltage under light load = 6.975 Volts.
SL-TDR> v
Battery voltage under light load = 6.975 Volts.
SL-TDR> v
Battery voltage under light load = 6.975 Volts.
SL-TDR> a3
S.W. Resistance = 255, Depth (m) = 4
S.W. Resistance = 255, Depth (m) = 0
S.W. Resistance = 255, Depth (m) = 4
S.W. Resistance = 255, Depth (m) = 0
SL-TDR> o
Do you wish to allow any unused portion of your daily transmission allowance
to be added to the next day's allowance? [n]
Do you wish to be able to set the daily transmission allowance on a
month-by-month basis? [n]
Enter number (0/6/10/14) of depth histogram bins: [14]
Enter number (0/6/10/14) of duration histogram bins: [14]
Enter number (0/6/10/14) of time-at-depth histogram bins: [14]
How many histograms or timeline messages should be encoded into
each transmission (1/2) [1]
Will the instrument be deployed in an area where fresh and salt water may
exist in discrete layers? [n]
SL-TDR> e
It is strongly recommended that you log the following information to a disk
file so that you have a permanent copy of this setup. In PROCOMM you do this
by pressing the ALT-F1 key combination. You will then be prompted for a
filename, a suggested name is 97-605.SET
After you have entered a filename, press return to continue.
SLTDR version: 3.14a
4E020E140404003C01001FFD7E0A0100
000101000001010000000000010100
000001010000000050340100504900000
0139372D363035FF000A0400000A0400
000A040000000100000001000000100
000A0A0301000100010002000000000
F401000000000000000000000000000
000000000000000000000000407020094
050A0F14191E23282D323F588AFF000E
020406080A0C0E101214191E28FF000E
050A0F14191E23282D323F588AFF000E
30030E610001020380FFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFF078B82FF
6D73393736303539373234313130FFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF

[redacted]Quarter-Watt, Microprocessor-controlled Satellite-linked Time-Depth Recorder.
Unit measures depth from 0 to 980 meters with a resolution of 4 meters
Software version 3.14a. Unit number: 97-605. ARGOS geolocation id = 24110
Unit identifier = ms976059724110. Unit started at 20:22:32 on 21/10/97
Time (GMT) is 03:47:42.14. Date (GMT) is 23 October 1997
Shallowest depth to be considered a "dive" = 8 meters
Deepest depth for accumulating surface-timelines (0=dry only) = 4 meters
SLTDR uses 1-sec / ¼-sec wakeups when shallower than 40 / 12 meters
Local time [0-23 hours] corresponding to 00h UT (GMT): 14
Transmission intervals (at-sea / on-land) = 00:49.50 / 01:34.50
SLTDR will use on-land interval after 10 consecutive dry transmissions
SLTDR will suspend transmissions after 4 hours "hauled-out".
"Haul-out" ends
after SLTDR is "wet" for 4 successive at-sea transmission intervals
Transmissions will be duty cycled with 1 day on and 0 days off
Daily allowance (1-message transmissions; unused xmits don't accumulate) = 500
STATUS will be transmitted every 20 messages.
Blocks of Time-Lines will be transmitted every 48 messages.
Hours when SLTDR transmits: 01-02,05-06,13-14,18-19
Upper limits of maximum-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
Upper limits of dive-duration histogram bins are:
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 25, 30, 40, ∞ minutes
Upper limits of time-at-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
**** Check these parameters carefully ****. Ready to deploy? y
Type D to archive depth readings, H to archive histograms: h

Unit is ready for deployment, disconnect cable and go for it...

18. Unit number: 97-606. ARGOS geolocation id = 24111 Unit identifier = ms976069724111

Time (GMT) is 04:41:45.72.
SL-TDR> d
Date (GMT) is 23 October 1997
SL-TDR> v
Battery voltage under light load = 7.099 Volts.
SL-TDR> v
Battery voltage under light load = 7.099 Volts.
SL-TDR> a
Conversion intervals:

1 = 0.1s, 2 = 0.5s, 3 = 1s, 4 = 5s, 5 = 10s, 6 = 30s, 7 = 60s
Enter interval number:
SL-TDR> a3
S.W. Resistance = 255, Depth (m) = 0
S.W. Resistance = 255, Depth (m) = 0
S.W. Resistance = 255, Depth (m) = 0
SL-TDR> o
Do you wish to allow any unused portion of your daily transmission allowance
to be added to the next day's allowance? [n]
Do you wish to be able to set the daily transmission allowance on a
month-by-month basis? [n]
Enter number (0/6/10/14) of depth histogram bins: [14]
Enter number (0/6/10/14) of duration histogram bins: [14]
Enter number (0/6/10/14) of time-at-depth histogram bins: [14]
How many histograms or timeline messages should be encoded into
each transmission (1/2) [1]
Will the instrument be deployed in an area where fresh and salt water may
exist in discrete layers? [n]
SL-TDR> e
It is strongly recommended that you log the following information to a disk
file so that you have a permanent copy of this setup. In PROCOMM you do this
by pressing the ALT-F1 key combination. You will then be prompted for a
filename, a suggested name is 97-606.SET
After you have entered a filename, press return to continue.
SLTDR version: 3.14a
A8020E140404003C01001FFD800A0100
00010100000101000000000000010100
00000101000000005035010050500000
0139372D363036FF000A0400000A0400
000A040000000100000001000000100
000A0A0301000100010020000000000
F401000000000000000000000000000
00000000000000000000000040702003D
050A0F14191E23282D323F588AFF000E
020406080A0C0E101214191E28FF000E
050A0F14191E23282D323F588AFF000E
30030E61000102037BFFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFF078BD1FF
6D7339373630363937323431313 1FFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF

SLOCUM Quarter-Watt, Microprocessor-controlled Satellite-linked Time-Depth Recorder.
Unit measures depth from 0 to 980 meters with a resolution of 4 meters
Software version 3.14a. Unit number: 97-606. ARGOS geolocation id = 24111
Unit identifier = ms976069724111. Unit started at 20:54:27 on 21/10/97
Time (GMT) is 04:42:04.66. Date (GMT) is 23 October 1997
Shallowest depth to be considered a "dive" = 8 meters
Deepest depth for accumulating surface-timelines (0=dry only) = 4 meters
SLTDR uses 1-sec / ¼-sec wakeups when shallower than 40 / 12 meters
Local time [0-23 hours] corresponding to 00h UT (GMT): 14
Transmission intervals (at-sea / on-land) = 00:50.50 / 01:35.50
SLTDR will use on-land interval after 10 consecutive dry transmissions
SLTDR will suspend transmissions after 4 hours "hauled-out". "Haul-out" ends
after SLTDR is "wet" for 4 successive at-sea transmission intervals
Transmissions will be duty cycled with 1 day on and 0 days off
Daily allowance (1-message transmissions; unused xmits don't accumulate) = 500
STATUS will be transmitted every 20 messages.
Blocks of Time-Lines will be transmitted every 48 messages.
Hours when SLTDR transmits: 01-02,05-06,13-14,18-19
Upper limits of maximum-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
Upper limits of dive-duration histogram bins are:
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 25, 30, 40, ∞ minutes
Upper limits of time-at-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
**** Check these parameters carefully ****. Ready to deploy? y
Type D to archive depth readings, H to archive histograms: h

Unit is ready for deployment, disconnect cable and go for it...

19. Unit number: 97-607. ARGOS geolocation id = 24112 Unit identifier = ms976079724112.

Time (GMT) is 04:48:13.22.
SL-TDR> d
Date (GMT) is 23 October 1997
SL-TDR> v
Battery voltage under light load = 7.161 Volts.
SL-TDR> v
Battery voltage under light load = 7.161 Volts.
SL-TDR> a3
S.W. Resistance = 255, Depth (m) = -4
S.W. Resistance = 255, Depth (m) = -4
S.W. Resistance = 255, Depth (m) = 0
SL-TDR> o
Do you wish to allow any unused portion of your daily transmission allowance
to be added to the next day's allowance? [n]
Do you wish to be able to set the daily transmission allowance on a
month-by-month basis? [n]
Enter number (0/6/10/14) of depth histogram bins: [14]
Enter number (0/6/10/14) of duration histogram bins: [14]
Enter number (0/6/10/14) of time-at-depth histogram bins: [14]
How many histograms or timeline messages should be encoded into
each transmission (1/2) [1]
Will the instrument be deployed in an area where fresh and salt water may
exist in discrete layers? [n]
SL-TDR> e
It is strongly recommended that you log the following information to a disk
file so that you have a permanent copy of this setup. In PROCOMM you do this
by pressing the ALT-F1 key combination. You will then be prompted for a
filename, a suggested name is 97-607.SET
After you have entered a filename, press return to continue.
SLTDR version: 3.14a
6A020E140404003C01001FFD800A0100
00010100000101000000000000010100
00000101000000005029010050440000
0139372D363037FF000A0400000A0400
000A040000000100000010000000100
000A0A0301000100010002000000000
F401000000000000000000000000000000
00000000000000000000000407020032
050A0F14191E23282D323F588AFF000E
020406080A0C0E101214191E28FF000E
050A0F14191E23282D323F588AFF000E
30030E610001020341FFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFF078C2AFF
6D733937363037393732343131 32FFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF

Quarter-Watt, Microprocessor-controlled Satellite-linked Time-Depth Recorder.
Unit measures depth from 0 to 980 meters with a resolution of 4 meters
Software version 3.14a. Unit number: 97-607. ARGOS geolocation id = 24112
Unit identifier = ms976079724112. Unit started at 20:39:59 on 21/10/97
Time (GMT) is 04:48:30.22. Date (GMT) is 23 October 1997
Shallowest depth to be considered a "dive" = 8 meters
Deepest depth for accumulating surface-timelines (0=dry only) = 4 meters
SLTDR uses 1-sec / ¼-sec wakeups when shallower than 40 / 12 meters
Local time [0-23 hours] corresponding to 00h UT (GMT): 14
Transmission intervals (at-sea / on-land) = 00:44.50 / 01:29.50
SLTDR will use on-land interval after 10 consecutive dry transmissions
SLTDR will suspend transmissions after 4 hours "hauled-out". "Haul-out" ends
after SLTDR is "wet" for 4 successive at-sea transmission intervals
Transmissions will be duty cycled with 1 day on and 0 days off
Daily allowance (1-message transmissions; unused xmits don't accumulate) = 500
STATUS will be transmitted every 20 messages.
Blocks of Time-Lines will be transmitted every 48 messages.
Hours when SLTDR transmits: 01-02,05-06,13-14,18-19
Upper limits of maximum-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
Upper limits of dive-duration histogram bins are:
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 25, 30, 40, ∞ minutes
Upper limits of time-at-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
**** Check these parameters carefully ****. Ready to deploy? y
Type D to archive depth readings, H to archive histograms: h

Unit is ready for deployment, disconnect cable and go for it...

20. Unit number: 97-608. ARGOS geolocation id = 24113 Unit identifier = ms976089724113.

Time (GMT) is 04:31:10.66.
SL-TDR> d
Date (GMT) is 23 October 1997
SL-TDR> v
Battery voltage under light load = 6.930 Volts.
SL-TDR> v
Battery voltage under light load = 6.930 Volts.
SL-TDR> v
Battery voltage under light load = 6.930 Volts.
SL-TDR> a3
S.W. Resistance = 255, Depth (m) = 4
S.W. Resistance = 255, Depth (m) = 4
S.W. Resistance = 255, Depth (m) = 0
SL-TDR> o
Do you wish to allow any unused portion of your daily transmission allowance
to be added to the next day's allowance? [n]
Do you wish to be able to set the daily transmission allowance on a
month-by-month basis? [n]
Enter number (0/6/10/14) of depth histogram bins: [14]
Enter number (0/6/10/14) of duration histogram bins: [14]
Enter number (0/6/10/14) of time-at-depth histogram bins: [14]
How many histograms or timeline messages should be encoded into
each transmission (1/2) [1]
Will the instrument be deployed in an area where fresh and salt water may
exist in discrete layers? [n]
SL-TDR> e
It is strongly recommended that you log the following information to a disk
file so that you have a permanent copy of this setup. In PROCOMM you do this
by pressing the ALT-F1 key combination. You will then be prompted for a
filename, a suggested name is 97-608.SET
After you have entered a filename, press return to continue.
SLTDR version: 3.14a
56020E140404003C01001EFD810A0100
00010100000101000000000000010100
00000101000000005028010050430000
0139372D363038FF000A0400000A0400
000A040000000100000010000000100
000A0A0301000100010020000000000
F401000000000000000000000000000000
00000000000000000000000040702009D
050A0F14191E23282D323F588AFF000E
020406080A0C0E101214191E28FF000E
050A0F14191E23282D323F588AFF000E
30030E610001020386FFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFFF078C79FF
6D7339373630383937323431313 3FFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF

Quarter-Watt, Microprocessor-controlled Satellite-linked Time-Depth Recorder.
Unit measures depth from 0 to 980 meters with a resolution of 4 meters
Software version 3.14a. Unit number: 97-608. ARGOS geolocation id = 24113
Unit identifier = ms976089724113. Unit started at 20:34:37 on 21/10/97
Time (GMT) is 04:31:24.07. Date (GMT) is 23 October 1997
Shallowest depth to be considered a "dive" = 8 meters
Deepest depth for accumulating surface-timelines (0=dry only) = 4 meters
SLTDR uses 1-sec / ¼-sec wakeups when shallower than 40 / 12 meters
Local time [0-23 hours] corresponding to 00h UT (GMT): 14
Transmission intervals (at-sea / on-land) = 00:43.50 / 01:28.50
SLTDR will use on-land interval after 10 consecutive dry transmissions
SLTDR will suspend transmissions after 4 hours "hauled-out". "Haul-out" ends
after SLTDR is "wet" for 4 successive at-sea transmission intervals
Transmissions will be duty cycled with 1 day on and 0 days off
Daily allowance (1-message transmissions; unused xmits don't accumulate) = 500
STATUS will be transmitted every 20 messages.
Blocks of Time-Lines will be transmitted every 48 messages.
Hours when SLTDR transmits: 01-02,05-06,13-14,18-19
Upper limits of maximum-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
Upper limits of dive-duration histogram bins are:
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 25, 30, 40, ∞ minutes
Upper limits of time-at-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
**** Check these parameters carefully ****. Ready to deploy? y
Type D to archive depth readings, H to archive histograms: h

Unit is ready for deployment, disconnect cable and go for it...

21. Unit number: 97-610. ARGOS geolocation id = 24115 Unit identifier = ms976109724115

Time (GMT) is 03:50:36.68.
SL-TDR> c
Unrecognizable command.
SL-TDR> d
Date (GMT) is 23 October 1997
SL-TDR> o
Do you wish to allow any unused portion of your daily transmission allowance
to be added to the next day's allowance? [n]
Do you wish to be able to set the daily transmission allowance on a
month-by-month basis? [n]
Enter number (0/6/10/14) of depth histogram bins: [14]
Enter number (0/6/10/14) of duration histogram bins: [14]
Enter number (0/6/10/14) of time-at-depth histogram bins: [14]
How many histograms or timeline messages should be encoded into
each transmission (1/2) [1]
Will the instrument be deployed in an area where fresh and salt water may
exist in discrete layers? [n]

SL-TDR> e
It is strongly recommended that you log the following information to a disk
file so that you have a permanent copy of this setup. In PROCOMM you do this
by pressing the ALT-F1 key combination. You will then be prompted for a
filename, a suggested name is 97-610.SET
After you have entered a filename, press return to continue.
SLTDR version: 3.14a
C8020E140404003C01001FFD800A0100
00010100000101000000000000010100
00000101000000005026010050410000
0139372D363130FF000A0400000A0400
000A040000000100000001000000100
000A0A0301000100010002000000000
F401000000000000000000000000000
00000000000000000000000407020053
050A0F14191E23282D323F588AFF000E
020406080A0C0E101214191E28FF000E
050A0F14191E23282D323F588AFF000E
30030E61000102037AFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFFFFFFFF078CDFFF
6D7339373631303937323431313 5FFFF
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFF

Quarter-Watt, Microprocessor-controlled Satellite-linked Time-Depth Recorder.
Unit measures depth from 0 to 980 meters with a resolution of 4 meters
Software version 3.14a. Unit number: 97-610. ARGOS geolocation id = 24115
Unit identifier = ms976109724115. Unit started at 20:51:54 on 21/10/97
Time (GMT) is 03:51:44.92. Date (GMT) is 23 October 1997
Shallowest depth to be considered a "dive" = 8 meters
Deepest depth for accumulating surface-timelines (0=dry only) = 4 meters
SLTDR uses 1-sec / ¼-sec wakeups when shallower than 40 / 12 meters
Local time [0-23 hours] corresponding to 00h UT (GMT): 14
Transmission intervals (at-sea / on-land) = 00:41.50 / 01:26.50
SLTDR will use on-land interval after 10 consecutive dry transmissions
SLTDR will suspend transmissions after 4 hours "hauled-out".
"Haul-out" ends
after SLTDR is "wet" for 4 successive at-sea transmission intervals
Transmissions will be duty cycled with 1 day on and 0 days off
Daily allowance (1-message transmissions; unused xmits don't accumulate) = 500
STATUS will be transmitted every 20 messages.
Blocks of Time-Lines will be transmitted every 48 messages.
Hours when SLTDR transmits: 01-02,05-06,13-14,18-19
Upper limits of maximum-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
Upper limits of dive-duration histogram bins are:
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 25, 30, 40, ∞ minutes
Upper limits of time-at-depth histogram bins are:
20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 252, 352, 552, ∞ meters
**** Check these parameters carefully ****. Ready to deploy? y
Type D to archive depth readings, H to archive histograms: h

Unit is ready for deployment, disconnect cable and go for it...

7.2. Appendix II. Vital information for seals equipped with satellite-linked radio transmitters at PHR in 1997.

Table 7.3.a.

PTT ID	Seal I.D.	Tag left	Tag right	Sex	Age (years)
5411	BC25	C25	C26	M	2
5412	BC39	C39	C040	M	2
5414	BC31	C31	C32	M	2
5416	BP33	P33	P34	M	1
5421	BC51	C51	C52	M	2
5422	BC05	C05	C06	F	2
5423	B1AS	1AS	1AT	F	15[a]
5424	BA11	A61	A62	M	14
24098	B5AW	5AW	5AX	M	15[a]
24099	BF32	F76	F77	M	9
24100	BK07	K47	K48 & K07	F	12
24101	BN71	N92 & N71	N91 & N70	M	10
24102	B2AG	2AG	2AH	F	9
24103	B1AE	1AE	1AF	M	15[a]
24104	BA19	A70	A71	M	14
24105	B5BA	5BA	5BB	F	12[a]
24106	B6AE	6AE	6AF	F	15[a]
24107	BL34	L34 & L75	L41 & L76	F	11
24108	BF24	F78 & F96	F79	M	9
24110	B1AY	1AY	1AZ	F	15[a]
24111	B6AA	6AA	6AB	F	15[a]
24112	B2AY	2AY	2AA	F	12-18[a]
24113	B3AC	3AC	3AD	M	15[a]
24115	BN48	N48 & N87	N49 & N86	M	10

[a]Estimate; actual age between 12 and 18 years (M. Craig, pers. comm.; in litt. 27 April 1998).

TABLE 7.3.b.

PTT I.D.	SDR I.D.	PTT System #	Tran. Freq.	PTT Power (W)	PTT Mfr.	Date PTT Deployed	Location PTT Deployed (ddmmyy)	Tracking period end
5411	.	395376A	164.374	250	Telonics	271097	S.E. ISLAND	8 Feb 98
5412	.	408464A	164.214	250	Telonics	021197	LITTLE N. IS	7 Feb 98
5414	.	414643A	164.682	250	Telonics	261097	S.E. ISLAND	5 Feb 98
5416	97611		164.874	250	WC[1]	301097	S.E. ISLAND	23 Feb 98
5421	97612		164.964	250	WC	261097	S.E. ISLAND	6 Jan 98
5422	97613		164.903	250	WC	281097	S.E. ISLAND	18 Feb 98
5423	97591		164.434	400	WC	301097	S.E. ISLAND	>30 Mar 98
5424	97592		164.714	400	WC	271097	GRASS ISLAND	>30 Mar 98
24098	97593	Post-deployment Failure	164.943	400	WC	261097	S.E. ISLAND	28 Oct 98
24099	97642		164.296	400	WC	251097	S.E. ISLAND	>30 Mar 98
24100	97595		164.657	400	WC	011197	GRASS ISLAND	>30 Mar 98
24101	97596		164.892	400	WC	261097	S.E. ISLAND	15 Feb 98
24102	97597	Post-deployment Failure	164.393	400	WC	011197	SEAL KITTERY	18 Nov 98
24103	97598		164.813	400	WC	281097	SEAL-KITTERY	>29 Mar 98
24104	97599		164.853	400	WC	311097	S.E. ISLAND	17 Feb 98
24105	97600		164.792	400	WC	261097	GRASS ISLAND	>30 Mar 98
24106	97601		164.454	400	WC	011197	GRASS ISLAND	>30 Mar 98
24107	97602		164.923	400	WC	271097	GRASS ISLAND	12 Feb 98
24108	97603	Post-deployment Failure	164.113	400	WC	301097	S.E. ISLAND	3 Dec 98
24109	97604	Pre-Deployment Failure		400	WC			
24110	97605		164.753	400	WC	271097	GRASS ISLAND	>30 Mar 98
24111	97606		164.323	400	WC	011197	GRASS ISLAND	>30 Mar 98
24112	97607		164.674	400	WC	281097	SEAL-KITTERY	>30 Mar 98
24113	97608		164.313	400	WC	281097	SEAL-KITTERY	>30 Mar 98
24114	97609	Pre-Deployment Failure		400	WC			
24115	97610		164.734	400	WC	281097	SEAL-KITTERY	18 Feb 98

[1]Wildlife Computers, Woodinville WA.

Table 7.3.c.[2]

PTT I.D.	Seal I.D.	Sex	Age (years)	Std. Length (cm)[3]	Ax. Girth (cm)[1]	Date PTT deployed	Resighting/recovery measurements (cm) Std. Length	Ax. Girth	Date (ddmmyy)
5411[4]	BC25	M	2	166.5	100	271097			
5412[5]	BC39	M	2	157	95	021197	156	102	022298
5414[6]	BC31	M	2	146.5	103.5	261097			
5416[7]	BP33	M	1	155	102	301097	159	97	022198
5421[8]	BC51	M	2	148	94	261097	157.5	98	022198
5422[9]	BC05	F	2	158.5	96	281097	161	101	021798
5423[10]	B1AS	F	15	215.5	140	301097			

[2]Recovery and Feb. 98 resighting information collected by M. Craig, NMFS/SWFSC, Honolulu Laboratory.

[3]Measurements at deployment.

[4]Seal seen on 21 Feb 98. PTT and hose clamp missing, all mesh still attached.

[5]PTT retrieved from seal on 21 Feb 98 at North Island.

[6]Seal seen on 21 Feb. 98. PTT and hose clamp gone, all mesh still attached.

[7]PTT retrieved from seal on 21 Feb. 98 at North Island.

[8]PTT retrieved from seal on 21 Feb 98 at S.E. Island.

[9]PTT retrieved from seal on 17 Feb 98 at S.E. Island.

[10]Seal seen at Grass Island on 16 Feb 98; PTT still attached.

Table 7.3.c.(continued)[1]

PTT I.D.	Seal I.D.	Sex	Age (years)	Std. Length (cm)[2]	Ax. Girth (cm)[1]	Date PTT deployed	Resighting/recovery measurements (cm) Std. Length	Ax. Girth	Date (ddmmyy)
5424[11]	BA11	M	14	213	138	271097			
24098[12]	B5AW	M	15	211	139	261097	213.5	152	022098
24099[13]	BF32	M	9	204	120	251097			
24100[14]	BK07	F	12	225.5	154	011197			
24101[15]	BN71	M	10	192.5	133.5	261097			
24102[16]	B2AG	F	9	206	129	011197	196.5	136	021698
24103[17]	B1AE	M	15	205	132.5	281097			

[11]Seal seen at Seal-Kittery on 16 Feb 98; PTT still attached.

[12]PTT retrieved from seal on 20 Feb 98 at S. E. Island.

[13]Seal seen at Little North Island on 21 Feb 98; PTT still attached.

[14]Seal seen at Grass Island on 23 Feb 98; PTT still attached.

[15]Seal seen on 22 Feb 98 at Grass Island; PTT missing and most mesh gone. Small area where hair missing.

[16]PTT retrieved from seal on 16 Feb 98 at Grass Island.

[17]Seal seen on 16 Feb 98 at Seal-Kittery; PTT still attached.

Table 7.3.c.(continued)[1]

PTT I.D.	Seal I.D.	Sex	Age (years)	Std. Length (cm)[2]	Ax. Girth (cm)[1]	Date PTT deployed	Resighting/recovery measurements (cm) Std. Length	Ax. Girth	Date (ddmmyy)
24104[18]	BA19	M	14	207	141	311097	203	151.5	021798
24105[19]	B5BA	F	12	212.5	138.5	261097			
24106[20]	B6AE	F	15	218.5	137	011197			
24107[21]	BL34	F	11	212	139	271097			
24108[22]	BF24	M	9	207.5	122	301097	206	132	021798
24110[23]	B1AY	F	15	213	126	271097			
24111[24]	B6AA	F	15	223.5	142.5	011197			

[18]PTT retrieved from seal on 17 Feb 98 at S. E. Island

[19]Seal seen on 16 Feb 98 at Grass Island; PTT still attached.

[20]Seal seen on 16 Feb 98 at Grass Island; PTT still attached.

[21]Seal seen on 16 Feb 98 at Seal Kittery Island; PTT not attached but found with mesh at Grass Island.

[22]PTT retrieved from seal on 19 Feb 98 at S.E. Island.

[23]Seal seen on 16 Feb 98 at Grass Island; PTT still attached.

[24]Seal seen on 19 Feb 98 at Grass Island; PTT still attached.

Table 7.3.c.(continued)[1]

PTT I.D.	Seal I.D.	Sex	Age (years)	Std. Length (cm)[2]	Ax. Girth (cm)[1]	Date PTT deployed	Resighting/recovery measurements (cm) Std. Length	Ax. Girth	Date (mmddyy)
24112[25]	B2AY	F	12-18	217.5	127.5	281097			
24113[26]	B3AC	M	15	206.5	129.5	281097			
24115[27]	BN48	M	10	207	123	281097			

[25]Seal seen on 19 Feb 98 at Grass Island; PTT still attached.

[26]Seal seen on 16 Feb 98 at Seal-Kittery; PTT still attached.

[27]Seal seen on 15 Feb 98 at S.E. Island; PTT and all mesh gone but hair not damaged.